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JNO. H. HEIMBUECHER METALS CO.

514 North Third Street

ST. LOUIS, MO.



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TRADE MARK
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MILL AT TAUNTON, MASS., WHERE COPPER PRODUCTS ARE MADE

JNO. H. HEIMBUECHER METALS CO.

Manufacturers' Agents

and

Distributors of

"OSAGE" Brand Non-Ferrous Products

GENERAL OFFICES AND WAREHOUSE

514 N. THIRD ST.

ST. LOUIS, MO.

Foreword

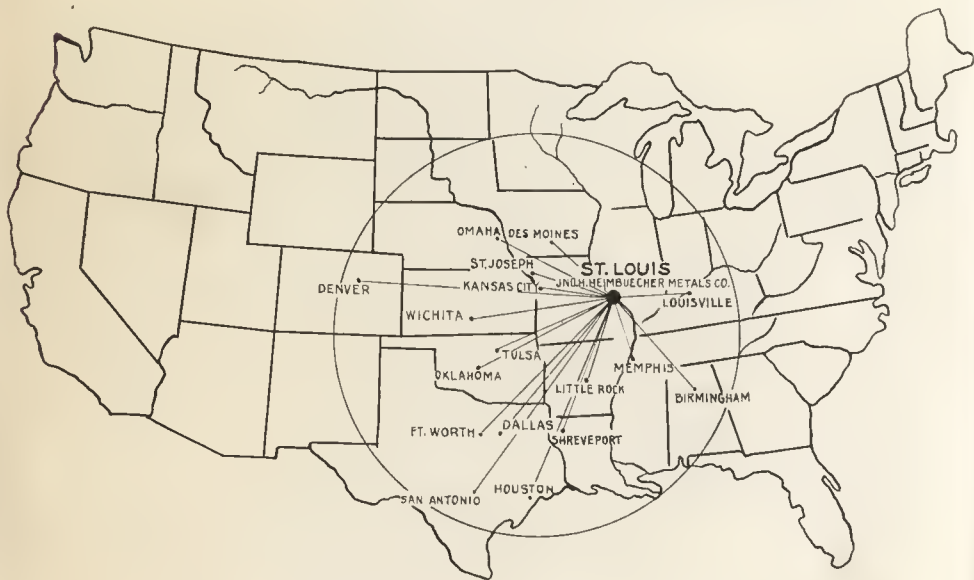
The gradual growth of our facilities for the distribution of Non-Ferous Products has justified the compilation of this catalog which comprehends a full line of non-rusting materials. Our affiliations with the manufacturers of Brass, Bronze, Copper and Zinc Products give us a direct contact which insures dependable delivery service both from local stock and from mill.

The several manufacturers with whom we are associated are The Taunton New Bedford Copper Co., The Bridgeport Brass Co., The Riverside Metal Co., The American Zinc Products Co., The Edes Manufacturing Co., and The A. H. Wells Co. These mills are equipped to furnish the trade with the highest grade of metal products in their respective lines, and can supplement with their prompt shipments our spot stock deliveries.

We therefore are pleased to present this book as testimony of our appreciation of the patronage we have enjoyed from our customers and dedicate our efforts in outlining these pages to a better and more complete service.

O. B. SUCK,

Vice-Pres. and Sec'y.



St. Louis -- The Hub of United States

St. Louis, geographically, is the Hub of the United States. The advantages of its central location as a distributing point are at once apparent.

Low freight rates, both land and water, coupled with Package Car Delivery Service, are linking St. Louis more closely with the West and Great Southwest territory, and are assisting in the development of our commerce to a point where buying in St. Louis means economy. The availability of our many large diversified stocks and manufacturing plants reduces the purchasing problem to a minimum. Buy in St. Louis—we can serve you.

JNO. H. HEIMBUECHER METALS CO.

514 N. THIRD ST.

ST. LOUIS, MO.

Sheet and Roll Copper



Carried in Stock, Ready for Immediate Shipment

SOFT PLAIN SHEET COPPER

COLD ROLLED COPPER, POLISHED ON ONE SIDE

14 Oz. to Sq. Ft.— 30 x 96 ins.	16 Oz. to Sq. Ft.— 30 x 96 ins.
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COLD ROLLED COPPER TINNED ON TWO SIDES

16 Oz. to Sq. Ft.— 18 x 72 ins.	16 Oz. to Sq. Ft.— 20 x 96 ins.
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COLD ROLLED COPPER POLISHED ON ONE SIDE AND TINNED ON THE OTHER

14 Oz. to Sq. Ft.— 14 x 56 ins. 14 x 60 ins. 30 x 96 ins.	16 Oz. to Sq. Ft.— 30 x 96 ins. 36 x 96 ins.
16 Oz. to Sq. Ft.— 12¾ x 18 ins. 19 x 70⅜ ins. 20 x 60 ins. 28 x 96 ins.	24 Oz. to Sq. Ft.— 30 x 96 ins. 28 Oz. to Sq. Ft.— 22 x 22 ins.

SOFT COPPER IN ROLLS

For flashings and valleys 75'-100' continuous lengths.

14 Oz. to Sq. Ft.— 9 ins. wide 10 ins. wide 12 ins. wide 15 ins. wide	16 Oz. to Sq. Ft.— 9 ins. wide 10 ins. wide 12 ins. wide 15 ins. wide
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8 Oz. to Sq. Ft.— 30 x 60 ins.	24 Oz. to Sq. Ft.— 30 x 60 ins.
10 Oz. to Sq. Ft.— 30 x 60 ins.	30 x 96 ins. 36 x 96 ins.
12 Oz. to Sq. Ft.— 30 x 60 ins. 30 x 96 ins.	48 x 96 ins.
14 Oz. to Sq. Ft.— 18 x 96 ins. 20 x 96 ins. 24 x 96 ins. 26 x 96 ins. 28 x 96 ins. 30 x 60 ins. 30 x 96 ins. 36 x 96 ins.	32 Oz. to Sq. Ft.— 30 x 60 ins. 30 x 96 ins. 36 x 96 ins. 48 x 96 ins. 48 x 144 ins.
16 Oz. to Sq. Ft.— 18 x 96 ins. 20 x 96 ins. 24 x 96 ins. 26 x 96 ins. 28 x 96 ins. 30 x 60 ins. 30 x 96 ins. 36 x 96 ins.	40 Oz. to Sq. Ft.— 30 x 60 ins. 36 x 96 ins. 48 x 96 ins.
18 Oz. to Sq. Ft.— 30 x 60 ins. 30 x 96 ins. 36 x 96 ins.	44 Oz. to Sq. Ft.— 30 x 60 ins. 36 x 96 ins.
20 Oz. to Sq. Ft.— 30 x 60 ins. 30 x 96 ins.	48 Oz. to Sq. Ft.— 30 x 60 ins. 48 x 96 ins.
	56 Oz. to Sq. Ft.— 30 x 60 ins.
	64 Oz. to Sq. Ft.— 48 x 96 ins. 48 x 144 ins.
	89 Oz. to Sq. Ft.— 48 x 96 ins.
	100 Oz. to Sq. Ft.— 48 x 144 ins.

COLD ROLLED COPPER BOILER BOTTOMS TINNED ONE SIDE, OVAL 14 Ounce

No. 7 11¼ x 21¼ ins.	No. 8 12½ x 23¼ ins.	No. 9 13¼ x 24¾ ins.
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COPPER TEA KETTLE BOTTOMS

No. 8 10½ x 14 ins.	No. 10 11½ x 14 ins.
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Sheet Copper



Carried in Stock, Ready for Immediate Shipment

COLD ROLLED PATENT LEVELED CORNICE SHEET COPPER

COLD ROLLED COPPER TINNED ON ONE SIDE

12 Oz. to Sq. Ft.— 30 x 96 ins.	20 Oz. to Sq. Ft.— 24 x 96 ins. 30 x 60 ins. 30 x 72 ins. 30 x 84 ins. 30 x 96 ins. 36 x 84 ins. 36 x 96 ins.
14 Oz. to Sq. Ft.— 18 x 96 ins. 20 x 96 ins. 24 x 96 ins. 26 x 96 ins. 28 x 96 ins. 30 x 96 ins. 36 x 96 ins.	24 Oz. to Sq. Ft.— 24 x 96 ins. 30 x 96 ins. 36 x 96 ins. 36 x 120 ins.
16 Oz. to Sq. Ft.— 18 x 96 ins. 20 x 60 ins. 24 x 96 ins. 24 x 120 ins. 26 x 96 ins. 28 x 84 ins. 28 x 96 ins. 30 x 96 ins. 30 x 120 ins. 36 x 72 ins. 36 x 96 ins.	28 Oz. to Sq. Ft.— 30 x 96 ins. 36 x 96 ins.
18 Oz. to Sq. Ft.— 20 x 96 ins. 24 x 96 ins. 30 x 60 ins. 30 x 96 ins. 36 x 96 ins.	32 Oz. to Sq. Ft.— 30 x 96 ins. 36 x 96 ins.
	36 Oz. to Sq. Ft.— 30 x 96 ins. 36 x 96 ins.
	44 Oz. to Sq. Ft.— 36 x 96 ins.

14 Oz. to Sq. Ft.— 30 x 96 ins. 36 x 96 ins.	16 Oz. to Sq. Ft.— 15½ x 28½ ins. 20 x 96 ins. 22 x 70 ins. 30 x 96 ins. 36 x 96 ins.
18 Oz. to Sq. Ft.— 36 x 96 ins.	20 Oz. to Sq. Ft.— 30 x 96 ins. 36 x 96 ins.
22 Oz. to Sq. Ft.— 24 x 30 ins. 26⅜ x 26⅜ ins.	24 Oz. to Sq. Ft.— 36 x 96 ins.
32 Oz. to Sq. Ft.— 30 x 96 ins. 36 x 96 ins.	36 Oz. to Sq. Ft.— 36 x 96 ins.

ECONOMY STRIP OR PARALLEL EDGE CONDUCTOR COPPER

14 Oz. to Sq. Ft.— 8 x 96 ins. 10 x 96 ins. 12 x 96 ins. 13 x 96 ins. 14 x 96 ins. 15 x 96 ins. 16 x 96 ins.	16 Oz. to Sq. Ft.— 8 x 96 ins. 10 x 96 ins. 12 x 96 ins. 13 x 96 ins. 14 x 96 ins. 15 x 96 ins. 16 x 96 ins.
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SHEET COPPER

Furnished from mill cut to special sizes and gauges and in special finishes as follows

Polished Surface

Nickle-Plated Surface

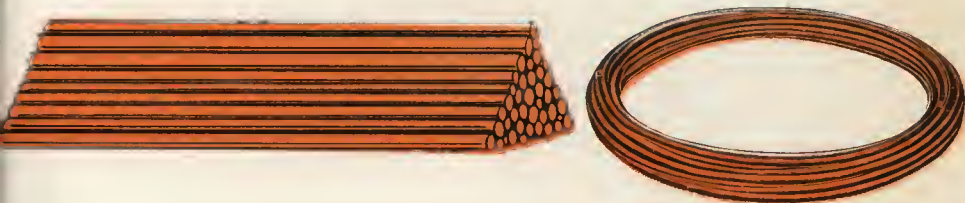
Lead Coated Surface

Tinned Surface

Seamless Copper Tubing



Carried in Stock, Ready for Immediate Shipment.



SEAMLESS HARD COPPER TUBING

SOFT SEAMLESS COPPER TUBING

Wall Thickness Gauge Number	Outside Diameter in Inches	Length in Feet
20 B&S	1/8	35'-50' Coils
22 B&S	1/8	35'-50' Coils
20 B&S	1/8	35'-50' Coils
18 B&S	1/8	25'-40' Coils
20 B&S	1/8	35'-50' Coils
21 B&S	1/8	10' Lengths
26 B&S	1/8	25'-50' Coils
20 B&S	1/8	25'-50' Coils
14 Stubbs	3/8	14' Lengths
16 Stubbs	3/8	14' Lengths
19 B&S	3/8	15'-25' Coils
20 B&S	3/8	25' Coils
14 Stubbs	1/2	14' Lengths
16 Stubbs	1/2	25' Coils
20 B&S	1/2	25' Coils
10 Stubbs	5/8	14' Lengths
14 Stubbs	5/8	14' Lengths
16 Stubbs	5/8	14' Lengths
16 B&S	5/8	14' Lengths
20 B&S	5/8	15'-25' Coils
20 B&S	5/8	14'-25' Coils
13 Stubbs	7/8	14' Lengths
14 Stubbs	7/8	14' Lengths
20 Stubbs	3/4	14' Lengths
10 Stubbs	1	14' Lengths
18 Stubbs	1	14' Lengths
20 Stubbs	1	14' Lengths
18 Stubbs	1 1/4	14' Lengths
20 Stubbs	1 1/4	14' Lengths
10 Stubbs	1 1/2	14' Lengths
18 Stubbs	1 1/2	14' Lengths
10 Stubbs	1 3/4	14' Lengths
16 Stubbs	1 3/4	14' Lengths
18 Stubbs	1 3/4	14' Lengths
10 Stubbs	2	14' Lengths
18 Stubbs	2	14' Lengths
10 Stubbs	2 1/4	14' Lengths
16 Stubbs	2 1/4	14' Lengths
16 Stubbs	3	14' Lengths
10 Stubbs	3 1/2	14' Lengths
14 Stubbs	3 1/2	14' Lengths
14 Stubbs	4	14' Lengths

Wall Thickness Stub's Gauge	Outside Diameter in Inches	Length in Feet
18	5/8	14
18	3/4	14
19	1	14
20	1	14
16	1 1/4	14
16	1 1/2	14
18	1 1/2	14
18	1 5/8	14
16	1 3/4	14
18	1 3/4	14
14	2	14
16	2	14
16	2 1/4	14
14	2 1/4	14
14	2 1/2	14
14	2 3/4	14
14	3	14
18 B&S	3	14

SEAMLESS COPPER TUBING Tinned on Two Sides

Wall Thickness B. & S. Gauge	Outside Diameter in Inches	Length in Feet
20 (Soft)	3/8	25 ft. Coils
18 (Soft)	1/2	25 ft. Coils
18 (Soft)	5/8	20 ft. Coils
20 (Hard)	1	14 ft. Lgths.
18 (Hard)	1 1/2	14 ft. Lgths.
17 (Hard)	1 1/2	14 ft. Lgths.
16 (Hard)	2	14 ft. Lgths.
16 (Hard)	2 1/4	14 ft. Lgths.
16 (Hard)	2 1/2	14 ft. Lgths.



Brass Rods and Bars



Carried in Stock, Ready for Immediate Shipment

ROUND BRASS RODS In 10 to 12-Foot Random Lengths

Diameter in Inches	Weight in Lbs. Per Lineal Ft.
$\frac{3}{32}$	.027
$\frac{1}{8}$	.045
$\frac{3}{16}$	.073
$\frac{9}{32}$	.102
$\frac{1}{4}$	.181
$\frac{9}{32}$	.225
$\frac{5}{16}$	.283
$\frac{11}{32}$	.335
$\frac{3}{8}$	.407
$\frac{7}{16}$	.555
$\frac{1}{2}$	.724
$\frac{9}{16}$	.917
$\frac{5}{8}$	1.132
$\frac{11}{16}$	1.369
$\frac{3}{4}$	1.630
$\frac{13}{16}$	1.913
$\frac{7}{8}$	2.218
$\frac{15}{16}$	2.546
1	2.897
$1\frac{1}{16}$	3.271
$1\frac{1}{8}$	3.667
$1\frac{3}{16}$	4.086
$1\frac{1}{4}$	4.527
$1\frac{3}{8}$	5.478
$1\frac{7}{16}$	5.98
$1\frac{1}{2}$	6.519
$1\frac{5}{8}$	7.651
$1\frac{3}{4}$	8.873
$1\frac{7}{8}$	10.19
$1\frac{15}{16}$	10.89
2	11.59
$2\frac{1}{8}$	13.08
$2\frac{1}{4}$	14.67
$2\frac{1}{2}$	18.11
3	26.08

HEXAGON BRASS RODS In 10 to 12-Foot Random Lengths

Diameter in Inches	Weight in Lbs. Per Lineal Ft.
$\frac{5}{16}$	.312
$\frac{3}{8}$	.449
$\frac{7}{16}$	.612
$\frac{1}{2}$	.799
$\frac{9}{16}$	1.011
$\frac{5}{8}$	1.248
$\frac{11}{16}$	1.510
$\frac{3}{4}$	1.797
$\frac{13}{16}$	2.109
$\frac{7}{8}$	2.446
1	3.195
$1\frac{1}{16}$	3.607
$1\frac{1}{8}$	4.048
$1\frac{1}{4}$	4.997
2	12.78

SQUARE BRASS RODS In 10 to 12-Foot Random Lengths

Size in Inches	Weight in Lbs. Per Lineal Ft.
$\frac{3}{16}$	.1297
$\frac{1}{4}$	.2306
$\frac{5}{16}$	.3602
$\frac{3}{8}$	.5188

FLAT BRASS RODS In 10 to 12-Foot Random Lengths

Size in Inches	Weight in Lbs. Per Lineal Ft.
$\frac{1}{16} \times \frac{1}{2}$	.1146
$\frac{1}{4} \times \frac{1}{2}$	.4584
$\frac{1}{16} \times \frac{3}{4}$	.1719
$\frac{1}{16} \times \frac{5}{8}$	.1432
$\frac{1}{16} \times 1$	.2292
$\frac{1}{8} \times 1$	.4584
$\frac{1}{4} \times 1$	.9168

Brass, Bars and Rods other than those listed above can be furnished from the mill to special order.

All our Brass Rods are of highest free turning quality—“LEDRITE” Brass Rods will save the machinist time and money.

Copper Kettles and Coils



We are prepared to handle orders for plain Copper Kettles, Kettles with Stands, and Steam Jacketed Kettles for all purposes. Prices upon application.



No. 1



No. 2



No. 3



No. 4

TABLE OF REGULAR SIZES OF
COPPER KETTLES

Size, Gallons	Weight, Pounds
8	11
10	12½
12	13½
14	16
15	18
16	19½
18	22½
20	24½
22	27
25	30½
28	35
30	37½
32	39½
35	41½
40	47½
45	53
50	57½
60	68

COPPER COILS



Prices on all coiling quoted on application, and upon receipt of specifications indicating entire length of coil, diameter of tubing, thickness of wall, number of turns in coil and outside diameter of the coil.



Brass, Bronze and Copper Wire



Carried in Stock, Ready for Immediate Shipment

BRASS WIRE

Spring Temper

B. & S. Gauge Numbers	Wt. in Pounds Per 1000 Lineal Ft.
2	191.4
4	120.4
5	95.47
6	75.71
7	60.04
8	47.61
9	37.76
10	29.94
11	23.75
12	18.83
13	14.93
14	11.84
15	9.393
16	7.449
18	4.684
20	2.946
22	1.853
24	1.165
26	.7328
28	.4609
30	.2898

COPPER WIRE

Soft Temper

B. & S. Gauge Number	Wt. in Pounds Per 1000 Lineal Ft.
00	402.8
0	319.5
1	253.3
2	200.9
3	159.3
4	126.4
5	100.2
6	79.46
7	63.02
8	49.98
10	31.43
12	19.77
13	15.68
14	12.43
15	9.858
16	7.818
17	6.200
20	3.092
22	1.945
24	1.223

COPPER WIRE

Hard Drawn Temper

B. & S. Gauge Numbers	Wt. in Pounds Per 1000 Lineal Ft.
0	319.5
1	253.3
2	200.9
4	126.4
6	79.46
7	63.02
8	49.98
10	31.43
12	19.77
14	12.43
16	7.818
18	4.917

PHOSPHOR BRONZE WIRE

In Coils of 5 to 7 Pounds Only

B. & S. Gauge Numbers	Wt. in Pounds Per 1000 Lineal Ft.
8	47.61
10	29.94
12	18.83
14	11.84
16	7.499
18	4.684
20	2.946
22	1.853
24	1.165
26	.7328
28	.4609

SPRING TEMPER PHOSPHOR BRONZE WIRE

This wire is adaptable for various kinds of high tension springs and coils where excessive wear is demanded. The spring temper will last indefinitely.

Coloring Copper and Brass

A demand for a few simple formulae for cleaning and coloring Copper and Brass exists among architects, metal workers, roofers and others using these metals. While the formulae given here have been widely used, they should be tried out in an experimental way with sample strips of the material before being generally applied on a large scale. This will always insure a successful application of the formulae.

PICKLING SOLUTIONS FOR COPPER AND COPPER ALLOYS

The following chemicals for pickling are dangerous and very corrosive and if one is not familiar with them and their action they should not be used. These mixtures are to rapidly remove scale and the tarnished surface of the metal so as to develop the natural fine color of the metal itself.

Sulphuric Acid Pickle:

Add $\frac{1}{2}$ gallon vitriol (75% H_2SO_4 , sp. gr. 1.7) to 100 gallons of water.

Sulphuric-Chromic Acid Pickle:

7 Pounds potassium or sodium bichromate should be dissolved in 10 gallons of water; then add 1 gallon (17 lbs.) vitriol (75% H_2SO_4 , sp. gr. 1.7).

Nitric Acid Bright Dip:

200 parts by weight of 52% nitric acid (sp. gr. 1.33). 1 to 2 parts of common salt.

Nitric-Sulphuric Acid Bright Dip:

100 parts by weight of strong sulphuric acid (sp. gr. 1.84). 75 parts by weight of strong nitric acid (sp. gr. 1.38). Add the sulphuric to the nitric acid in small quantities at a time, stirring continually. Allow to cool before using. A little common salt added to the bath before using will prove advantageous.

For bright dipping the article should be almost dry. Dip in the acid mixture for only a moment and then wash quickly in plenty of clean water. A matt finish results if the dipping is too slow or if the bath is warm. A matt finish may be bright finished by re-dipping in a mixture of:

6 parts of hydrochloric acid

1 part of nitric acid

2 parts water

To prevent tarnishing of bright dipped articles give them a final dip after thoroughly washing in water in a weak solution of argol or tartaric acid.

COLORING

Copper:

Before coloring it is essential that the metal be freed of oil that was used in the rolling operations. Due to the fine grain structure of the metal the oil or grease has been rolled into the pores and cleaning can not be carried out too carefully.

To Clean Copper:

Prepare a strong soda or potash lye solution by adding about a pound of lye to a pail of boiling water. Dip the metal or apply this solution with a brush, scrubbing well. Then rinse or wash with plain hot water and finally with cold water.

To Secure Green "Patina" Color:

Copper, when exposed to the atmosphere, will develop verdigris (green) after a time, due to natural phenomena, especially along the sea-coast.

To quickly develop this beautiful green "patina" that is so striking and permanent, use one of the following methods:

- Use a solution of $\frac{1}{2}$ lb. of salt to 2 gallons of water. Apply to copper surface with a brush and allow to dry. Sufficient applications at one or two day intervals should be made until the desired effect is produced.
- Dissolve thoroughly 1 lb. of powdered sal ammoniac in about 5 gallons of water and let stand 24 hours. Apply to copper with a brush, covering every part; let stand one day and then sprinkle surface with clean water.
- This formula, while producing excellent results, is not recommended for general use, as it requires careful handling; Dissolve 10 parts copper in $2\frac{1}{2}$ parts by weight of strong nitric acid and then add 150 parts of 20% acetic acid and five parts of ammonium chloride. The resulting solution shall be diluted with about 3 parts water and applied to surface with a brush and allowed to dry. Sufficient applications at one or two day intervals shall be made until desired effect is produced.

HARDWARE GREEN FINISH ON BRASS

Produce a fine emery finish, clean thoroughly and immerse in following solution until brass develops a greenish color:

Water 180°F	1 gallon
Hyposulphite of Soda	8 ounces
Nitrate of Iron	2 ounces

When green tone develops, wash in water and touch up high lights, using tampico brush or wheel and a little fine brimstone and water.



Copper -- The Ideal Roof

Copper is the ideal roof, because of its economy, durability and beauty. The unique structural and artistic advantages which are afforded to architect and owner in the use of copper for a roof, can be applied to any type of roof and any type of building.

While there is a great variety of roofs, the principal types, of which all others are variants, can be confined to five, as follows:

1. The Mansard Type
2. The Gable Type
3. The Gambrel Type
4. The Hip Type
5. The Flat Type.

Four Styles of Copper Shingles and Tile



Copper, because of its high resistance to corrosion, is, practically speaking, an everlasting metal for roofing. There is no maintenance cost on a properly installed copper roof.

Because of the lightness in weight of copper, it is economical to use and permits the use of light frame-work.

The following table shows the relative weights of seven types of roofing as compared to two types of copper roofing:

Material	Weight per 100 Sq. Ft. Laid
Shingle Tile	1200—1800 lbs.
Spanish Tile	650— 850 lbs.
Slate	450— 675 lbs.
Felt and Gravel (or Slag)	400— 625 lbs.
Asbestos Shingles	300— 650 lbs.
Hardlead Shingles	210— 325 lbs.
Wood Shingles	200— 300 lbs.
20-g. Galvanized Iron (Corrugated)	225 lbs.
16-oz. Copper (Standing Seam)	125 lbs.
Copper Shingles	84— 100 lbs.
Tin	75 lbs.

Pure Zinc Gutters, Leaders and Downspouts



*All sizes, shapes and styles furnished are the same as for Copper
on Pages 12 and 13.*

Because of the apparent misconception sometimes existing about difficulties in working zinc, we list a few simple instructions which if followed will give 100% satisfaction on all zinc installations which are becoming more numerous each year because of their durability and economy.

Erection Instructions

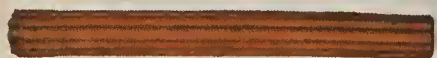
A properly erected zinc job will last almost indefinitely. To do this, keep the following points in mind:

1. Contraction and expansion is greater in zinc than in other metals. Slip joint gutter and pipe connections should be 1" to 1½". Pipe and gutter connections may be soldered together if crimped Zinc is used. Crimped Zinc provides for contraction and expansion, adds strength and attractiveness.
2. Zinc should not come in contact with other metals. If it must, the joint should be covered with roofing cement.
3. Make sure that gutter hangers are not more than two feet apart and not more than one foot from each end or mitre. Always support both half round and O. G. gutters from the underside.
4. The rack type fastener with tinned or galvanized pin is preferred to hooks for the purpose of supporting conductor pipe. Solder all racks securely to avoid their pulling away. The iron should be moderately hot.
5. Zinc is weather-proof metal in itself, and paint will not add to its life. However, if it is desired to use paint, a solution of either copper sulphate or copper acetate will roughen the zinc surface sufficiently to allow the paint to adhere.

Clean up the job when it is finished. Don't leave nails, pieces of metal or dirt lying in the gutters. Properly and carefully erected, you will be sure of a job satisfactory to your customer and a credit to yourself.

Leaders and gutters are made from No. 11 Zinc only; this is 024" thick and weighs 9-10 pounds per square foot.

CONDUCTOR PIPE



Round Corrugated



Square Corrugated



Plain Round



Plain Square

ELBOWS AND SHOES



No. 2-60°



No. 3-75°



No. 3-Shoe

Style A-Square Corrugated



No. 1-45°



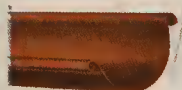
No. 3-75°



No. 3-Shoe

Style B-Square Corrugated

EAVES TROUGHS



No. 1-45°



No. 3-75°



No. 4-90°

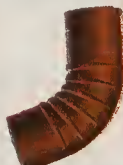


No. 3-Shoe

Round Corrugated



No. 2-60°



No. 3-75°



No. 4-90°



No. 3-Shoe

Plain Round

ROOF GUTTERS

STYLE	GUTTER
A	14 inches 20 inches 24 inches
B	15 inches 20 inches 24 inches
C	12 inches 14 inches 16 inches
D	15 inches 18 inches 20 inches
E	15 inches 18 inches 22 inches
F	18 inches 20 inches 22 inches
G	18 inches 20 inches 22 inches
H	14 inches 16 inches 18 inches
J	18 inches 20 inches 24 inches



INSIDE MITRE.



OUTSIDE MITRE.



CUT-OFF



RIVAL STRAP GUTTER HANGER

RIDGING



ENDS



WIRE CONDUCTOR STRAINER



No. 1



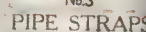
No. 2



No. 3



LARGE CONDUCTOR HEADS



PIPE STRAPS



Copper Roofing Accessories

Carried in Stock, Ready for Immediate Shipment

CONDUCTOR PIPE

Plain Round	Standard Size	2"	3"	4"	5"	
Square Corrugated	Standard Size	2"	3"	4"	5"	
	Actual Measurement	1 3/4 x 2 1/4	2 3/8 x 3 1/4	2 3/4 x 4 1/4	3 3/4 x 5	
Rectangular	Actual Measurement	1 3/4 x 2 1/4	2 x 3	2 x 4	3 x 4	4 x 5

Furnished in 14 oz. and 16 oz. copper and No. 11 Crimped Zinc. 10 foot lengths.

EAVES TROUGH Furnished in 14 oz. and 16 oz. Copper and 11 Ga. Crimped Zinc.

SINGLE BEAD

		LAP AND SLIP JOINT		10 Ft. Lengths					
Size of Trough	3"	3 1/2"	4"	5"	6"	7"	8"	9"	10"
Size of Bead	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	5/8	5/8	5/8	5/8
Girth in inches	6	7	8	10	12	14	15	18	20

DOUBLE BEAD

		LAP AND SLIP JOINT		10 Ft. Lengths					
Size of Trough	3"	3 1/2"	4"	5"	6"	7"	8"	9"	10"
Size of Bead	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	5/8	5/8	5/8	5/8
Girth in inches	7	9	10	12	14	16	17	20	22

In ordering slip Joint, state whether right hand or left hand is wanted.

ROOF GUTTERS

Made to order as shown in Styles A & B in 14 oz. and 16 oz. C. R. Copper and 11 Ga. Crimped Zinc.

State style and girth when ordering.

BOX AND O. G. ROOF GUTTERS

Made to order as shown in Styles C, D, E, F, G, H, J in 14 oz. and 16 oz. C. R. Copper and No. 11 Ga. Crimped Zinc.

State Style and Girth when ordering.

MITRES

Double Bead and Single Bead Lap Joint and Slip Joint furnished in 16 oz. Copper and No. 11 Ga. Crimped Zinc. When ordering Mitres state whether inside or outside is desired also, whether Mitres are for right and left hand.

EAVES TROUGH END PIECES

Furnished in 16 oz. copper and No. 11 Ga. Crimped Zinc sizes 3 1/2", 4", 5", 6", 7", 8" for Single or Double Bead. When ordering specify whether right or left hand is desired.

EAVES TROUGH END CAPS AND OUTLETS

Furnished in 16 oz. and 11 Ga. Crimped Zinc. Caps Size 3 1/2", 4", 5", 6", 7", 8". Outlets 2", 3", 4", 5", 6".

"RIVAL" STRAP GUTTER HANGERS

Furnished in Galv. Iron and Copper. They are economical, quickly adjusted, rigid in construction and safely lock the bead. Stock Sizes 4", 5", 6".

COPPER WIRE CONDUCTOR STRAINERS

Made of Pure, solid, drawn copper wire. Round—Dia. 2", 3", 4", 5", 6". Square—2x3 3x4 4x5.

ELBOWS AND SHOES

Furnished in 16 oz. Copper, 11 Ga. Crimped Zinc.

Plain Round and Round Corrugated.

2" #0-30°	#1-45°	#2-60°	#3-75°	#4-90°	Shoes 75°
3" #0-30°	#1-45°	#2-60°	#3-75°	#4-90°	Shoes 75°
4" #0-30°	#1-45°	#2-60°	#3-75°	#4-90°	Shoes 75°
5" #0-30°	#1-45°	#2-60°	#3-75°	#4-90°	Shoes 75°
6" #0-30°	#1-45°	#2-60°	#3-75°	#4-90°	Shoes 75°

Square Corrugated Style A.

2" #0-30°	#1-45°	#2-60°	#3-75°	#4-90°	Shoes 75°
3" #0-30°	#1-45°	#2-60°	#3-75°	#4-90°	Shoes 75°
4" #0-30°	#1-45°	#2-60°	#3-75°	#4-90°	Shoes 75°
5" #0-30°	#1-45°	#2-60°	#3-75°	#4-90°	Shoes 75°

Square Corrugated Style B.

2" #0-30°	#1-45°	#2-60°	#3-75°	Shoes 75°
3" #0-30°	#1-45°	#2-60°	#3-75°	Shoes 75°
4" #0-30°	#1-45°	#2-60°	#3-75°	Shoes 75°
5" #0-30°	#1-45°	#2-60°	#3-75°	Shoes 75°

Also furnished in Polygon or Octagon.

COPPER AND ZINC RIDGE ROLL

Furnished in 14 and 16 oz. Copper and No. 11 Ga. Crimped Zinc.

Girth	Roll	Apron
7"	1 1/4	2
8"	1 1/2	2
10"	2	2 1/2
12"	2 1/2	3
14"	3	3 1/2

COPPER AND ZINC CUT-OFFS

Furnished in 16 oz. Copper and 11 Ga. Crimped Zinc in Sizes 2", 3", 4", 5", for Plain Round and Round Corrugated and Square Corrugated Conductor.

FANCY CONDUCTOR HEADS

Can furnish any style or size desired upon receipt of detail. In Copper and Zinc.

ORNAMENTAL CONDUCTOR STRAPS

Furnished in Copper or Zinc in Styles #1-2-3 for 2", 3", 4", 5" Conductor.

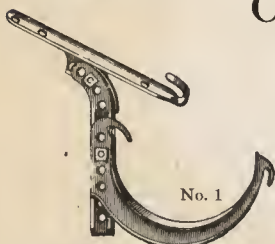
Send us Your Mail Orders.



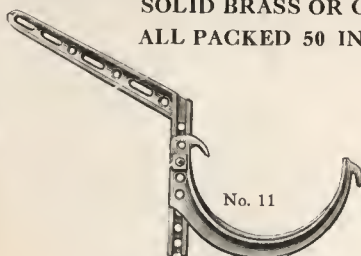
Copper Roofing Accessories

CIRCLES, SHANKS AND HOOKS

FURNISHED IN BLACK, TINNED, GALVANIZED,
SOLID BRASS OR COPPER
ALL PACKED 50 IN A BOX



No. 1
To be clamped to metal roof



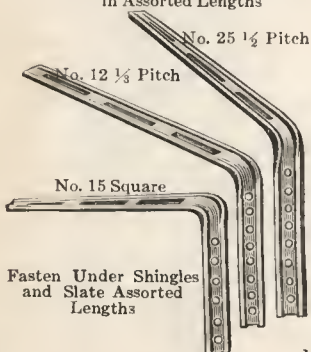
No. 11
For fastening to Side of Rafter
in Assorted Lengths



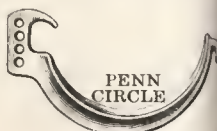
GEM
CIRCLE
For Single Bead
Sizes 3" to 8"



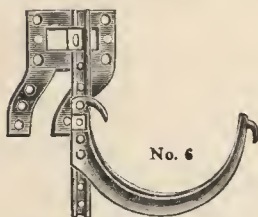
No. 5
Will Span over shaped
mouldings



No. 12 1/2 Pitch
No. 25 1/2 Pitch
No. 15 Square
Fasten Under Shingles
and Slate Assorted
Lengths



PENN
CIRCLE
For Double Bead
Sizes 3 1/2" to 8"



No. 6
For O. G. Moulding Assorted
Lengths



BRICK

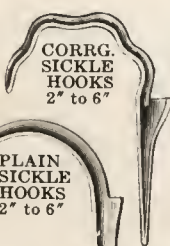
DRIVES



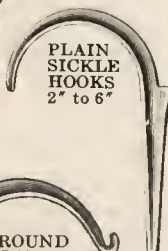
WOOD



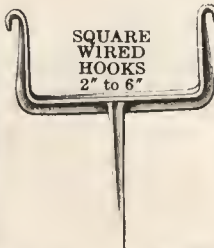
No. 7
Drive in Cornice various
angles and lengths



CORRG.
SICKLE
HOOKS
2" to 6"



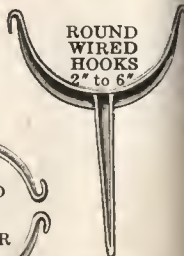
PLAIN
SICKLE
HOOKS
2" to 6"



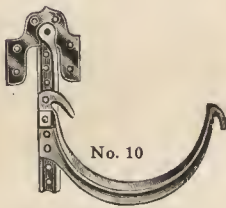
SQUARE
WIRED
HOOKS
2" to 6"



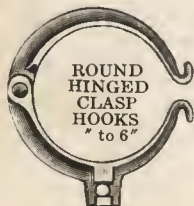
SQUARE
CLASP
HOOKS
2" to 6"



ROUND
WIRED
HOOKS
2" to 6"



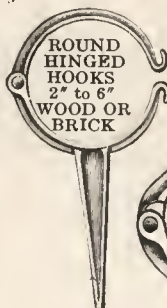
No. 10
For square box cornices
Assorted lengths



ROUND
HINGED
CLASP
HOOKS
2" to 6"



CORRG.
HINGED
HOOKS
2" to 6"
WOOD OR
BRICK



ROUND
HINGED
HOOKS
2" to 6"
WOOD OR
BRICK



CORRG.
HINGED
CLASP
HOOKS
2" to 6"

"Horse Head" Crimped Zinc

Especially made

FOR STANDING SEAM ROOF

"For Mill and Local Stock Shipment"



Horse Head Zinc for Standing Seam Roofing is put up in rolls 20" wide; made from No 10 Gauge Zinc, which is cornice crimped. There is sufficient material packed separately in a metal canister, together with all necessary fastenings including Zinc Clips and Zinc Clad Nails to lay one square of roofing, allowing for laps and seams. Shipping Weight 96 pounds per cask. Each cask contains instruction sheet for application of material.

A roof of Horse Head Zinc is safe, fire resisting, and a protection against lightning. Zinc will not rust or stain, and requires no protective coating. The silvery gray color of Zinc harmonizes with its surroundings.

Caution: Since certain woods, notably redwood and cedar contain acids which are harmful to metal, the use of zinc is not recommended where such woods will come in contact with the metal.



Packed in 50 lb. Spools

OSAGE BRAND SOLDER



Packed in 100 lb. Boxes

All grades of our solder made from Virgin Metals.

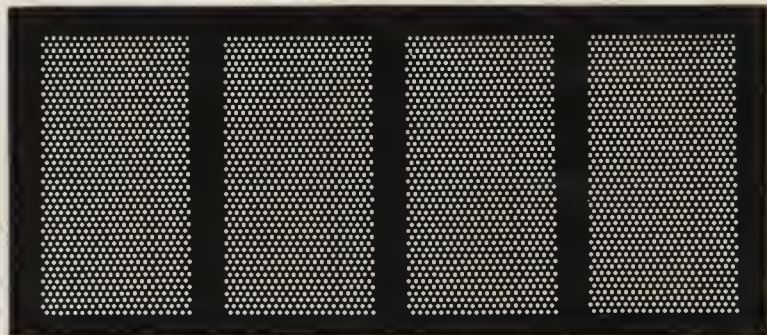
Carried in stock in two grades, Warranted 50-50, Strictly Half and Half.

OSAGE BRAND PERFORATED SHEETS

For Wash Machine Cylinders

Carried in Stock, for Immediate Shipment

In 13 Gauge Zinc and 18 oz. Copper



Size of sheet $20\frac{1}{8}$ " x 47" long $\frac{1}{4}$ " holes.

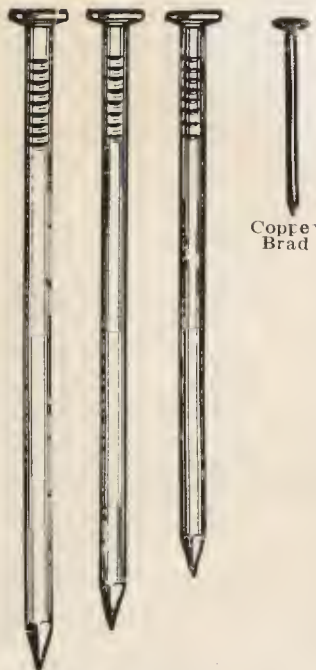
Weight per sheet—Zinc 7 lbs., Copper 8 lbs.

Especially adapted for Eden Machines and many others.



Copper Nails and Tacks

Carried in Stock, Ready for Immediate Shipment



Copper
Brad

Flat Head Copper Tacks

COPPER WIRE SHINGLE NAILS

Small Head

Packed in Kegs of 100 Pounds and 5-pound Packages

Length in Inches	Gauge	Approx. Standard Wire Nail Size	Approx. Number of Nails to Pound
$\frac{3}{4}$	14		900
1	13	2 D	525
$1\frac{1}{4}$	13	3 D	429
$1\frac{1}{2}$	13	4 D	280
2	12	6 D	128

COPPER WIRE SLATERS' NAILS

Large Head

Packed in Kegs of 100 Pounds and 5-Pound Packages

Length in Inches	Gauge	Approx. Standard Wire Nail Size	Approx. Number of Nails to Pound
$\frac{3}{4}$		12	650
1	2 D	12	411
$1\frac{1}{4}$	3 D	12	225
$1\frac{1}{2}$	4 D	$10\frac{1}{2}$	125
$1\frac{3}{4}$		$10\frac{1}{2}$	112
2	6 D	10	95
$2\frac{1}{4}$	7 D	10	88
$2\frac{1}{2}$	8 D	9	80
$2\frac{3}{4}$	9 D	9	70

Large Copper Nails

SPECIAL LARGE COPPER SPIKES

Packed in Kegs of 100 Pounds and 5-Pound Packages

Length in Inches	Gauge	Approx. Standard Wire Nail Size	Approx. Number of Nails to Pound
3	9	10 D	57
$3\frac{1}{2}$	9	16 D	44
4	6	20 D	30

COPPER BRADS

Packed in 1-Pound Packages

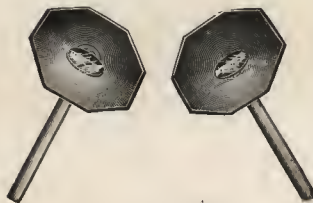
Length in Inches	B. & S. Gauge	Approx. Number to Pound
$\frac{5}{8}$	18	1200
$\frac{3}{4}$	18	1100

FLAT HEAD COPPER TACKS

Packed in Kegs of 100 Pounds and 5-Pound Packages

Length in Inches	Size Number
$\frac{1}{4}$	2
$\frac{1}{2}$	6
$\frac{3}{4}$	14

Copper Slaters Nails



Copper Storm Nails

COPPER STORM NAILS

Intended for use as an asbestos shingle nail. Furnished with octagon head, perfectly shaped, $\frac{5}{8}$ -inch and $\frac{3}{4}$ -inch in diameter. No. 14 Stubb's gauge copper wire shank. Approximately 220 nails to the pound. Our Storm Nails are perfectly made with the shank in center of head.

COPPER SLATERS' NAILS AND SHINGLE NAILS

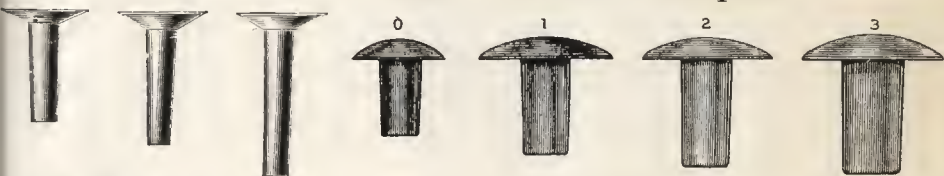
All Copper Slaters' Nails have a large flat head with heavy shanks accurately pointed. The points are of such design as to insure easy driving without loss of nail.

All Copper Shingle Nails are made with standard small head and thin shank, perfectly pointed.

Copper Rivets and Burs



Carried in Stock, Ready for Immediate Shipment

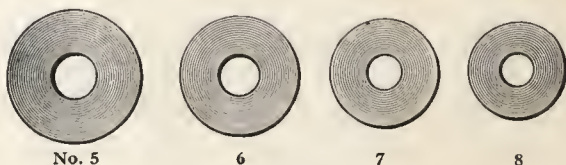


Copper Belt Rivets

Copper Braziers' Rivets



Round Head Copper Rivets



Copper Burs

COPPER BELT RIVETS AND BURS Packed With Burs in 1-Pound Packages

Rivet Gauge	Lengths Carried in Stock					
7	$\frac{3}{4}$	$\frac{9}{16}$	1	$1\frac{1}{4}$	1	$1\frac{1}{4}$
8	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	$1\frac{1}{4}$
9	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$		
10	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$		

OVAL HEAD COPPER BRAZIER'S RIVETS For Coppersmiths Packed Without Burs in 5-Pound Boxes

Numbers Carried in Stock	00	0	1	2	3	4	5	6	7	8	9
Diameter of Shank, Ins.	$\frac{3}{16}$	$\frac{3}{8}$	$\frac{1}{4}$	$1\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{3}{8}$	$\frac{7}{8}$	$1\frac{1}{2}$	$1\frac{5}{8}$
Length Under Head, Ins.	—	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{3}{8}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{1}{2}$	$1\frac{1}{8}$	$1\frac{1}{4}$

SPECIAL SIZES OF OVAL HEAD COPPER RIVETS In 5-Pound Boxes or Bulk

Diam. Inches	Length, Inches					
$\frac{3}{8}$	$\frac{3}{8}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
$\frac{1}{4}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$			

COPPER BELT RIVETS AND BURS Assorted Lengths Packed With Burs in 1-Pound Packages

No. 9—Length, $\frac{3}{8}$ to $\frac{3}{4}$ inches.
No. 10—Length, $\frac{3}{8}$ to $\frac{5}{8}$ inches.
No. 12—Length, $\frac{3}{8}$ to $\frac{3}{4}$ inches.

COPPER BELT RIVETS AND BURS Uniform Lengths Packed With Burs in 1-Pound Boxes

Size, Inches	Length, Inches					
5	$\frac{1}{2}$					
7	$\frac{5}{8}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	
8	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$			
9	$\frac{1}{2}$	$\frac{3}{4}$				
10	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{8}$		
12	$\frac{1}{4}$	$\frac{1}{2}$				

COPPER BURS ONLY Packed in 1-Pound Boxes

Numbers: 5, 7, 8, 9, 10, 11, 12 and 13.

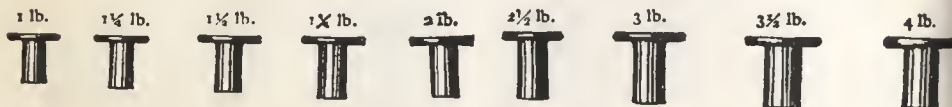
RIVETS OF OTHER SIZES AND STYLES

Special sizes and styles can be made up at factory according to specifications.



Copper Rivets and Burs

Carried in Stock, Ready for Immediate Shipment



Copper Tinner's and Coopers' Rivets



Copper Brake Band Rivets

COPPER BRAKE BAND RIVETS
Packed in 1-Pound Boxes

Sizes, Inches	Length, Inches						
6	$\frac{3}{4}$						
7	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	1
8	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
9	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
10	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	
12	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	

FLAT HEAD COPPER TINNERS' RIVETS

Packed in 1-Pound Boxes

Same size as corresponding size of Standard Iron Tinner's Rivets. Size is differentiated on the basis of weight of 1000 rivets. Thus, a 2-pound rivet is the size that 1000 rivets weigh.

SIZES: 1, 1 $\frac{1}{4}$, 1 $\frac{1}{2}$, 1 $\frac{3}{4}$, 2, 2 $\frac{1}{2}$, 3, 4, 5, 6, 7 and 8.

TINNERS' AND COOPERS' RIVETS

The Size Number Indicates the Weight in Pounds of 1000 Rivets
Packed in 1-Pound Boxes

Size	Diameter Inches	Length, Inches
1	.115	13/64
1 $\frac{1}{4}$	.120	7/32
1 $\frac{1}{2}$	.125	15/64
1 $\frac{3}{4}$	.133	$\frac{1}{4}$
2	.140	17/64
2 $\frac{1}{2}$	.147	9/32
3	.160	5/16
3 $\frac{1}{2}$	.163	21/64
4	.173	11/32
5	.185	3/8
6	.200	25/64
7	.215	13/32
8	.225	7/16
9	.230	29/64
10	.233	15/32
12	.253	$\frac{1}{2}$
14	.275	33/64
16	.293	17/32
18	.335	19/32
20	.363	11/16

Brass Rivets and Washers

Solid, Tubular and Split

Carried in Stock, Ready for Immediate Shipment



Split Brass Rivets



Tubular Brass Rivets



Round Head
Aluminum
Rivet

All standard styles and sizes furnished to order. If possible, send sample of rivet desired, or indicate style of head, and diameter and length of shank, by blue print or drawing. When burs or washers are wanted, state in-side and outside diameters, and thickness.

The following stock sizes promptly supplied:

SPLIT BRASS RIVETS Lengths Carried in Stock

Style Number	Standard Packing	Lengths in Inches							
203	Boxes of 1000	$\frac{1}{4}$							
272	Boxes of 1000	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{5}{8}$	$1\frac{3}{4}$	
1717	Boxes of 1000	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{3}{4}$	
1717	Cartons 12-100s	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{5}{8}$	$1\frac{3}{4}$	
1879	Boxes of 1000	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{3}{4}$	
1879	Cartons 12-100s	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{5}{8}$	$1\frac{3}{4}$	
2970	Boxes of 1000	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{3}{4}$	
2970	Cartons 12-100s	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{5}{8}$	$1\frac{3}{4}$	

ALUMINUM RIVETS

Diameter in Inches	Style of Rivet	Diameter in Inches	Style of Rivet
.062 x $\frac{3}{16}$	Brazier Head	.156 x $\frac{3}{8}$	Flat Head
.062 x .125	Flat Head	.156 x $\frac{1}{4}$	Brazier Head
.062 x .125	Round Head		
.083 x .125	Round Head	.156 x $\frac{3}{16}$	Brazier Head
		.156 x $\frac{3}{4}$	Round Head
.093 x $\frac{1}{4}$	Brazier Head	$\frac{3}{16}$ x $\frac{1}{4}$	Round Head
.093 x $\frac{3}{16}$	Round Head	$\frac{3}{16}$ x $\frac{3}{8}$	Flat Head
.093 x .093	Brazier Head		
.093 x $\frac{5}{16}$	Brazier Head	$\frac{3}{16}$ x $\frac{5}{16}$	Brazier Head
.093 x .093	Brazier Head	$\frac{3}{16}$ x $\frac{1}{2}$	Round Head
		$\frac{3}{16}$ x $\frac{3}{4}$	Round Head
102 x $\frac{3}{16}$	Brazier Head		
102 x $1\frac{1}{4}$	Brazier Head	$\frac{1}{4}$ x $\frac{1}{4}$	Brazier Head
		$\frac{1}{4}$ x $\frac{1}{16}$	Round Head
$\frac{1}{8}$ x $\frac{1}{8}$	Round Head	$\frac{1}{4}$ x $\frac{1}{2}$	Flat Head
$\frac{1}{8}$ x $\frac{3}{16}$	Round Head	$\frac{1}{4}$ x 1	Flat Head
$\frac{1}{8}$ x $\frac{3}{16}$	Brazier Head	$\frac{1}{4}$ x $\frac{3}{8}$	Round Head
$\frac{1}{8}$ x $\frac{1}{4}$	Flat Head		
$\frac{1}{8}$ x $\frac{1}{4}$	Brazier Head	$\frac{3}{8}$ x 1	Round Head
$\frac{1}{8}$ x $\frac{5}{16}$	Round Head		
$\frac{1}{8}$ x $\frac{5}{16}$	Brazier Head		
$\frac{1}{8}$ x $\frac{3}{8}$	Flat Head		

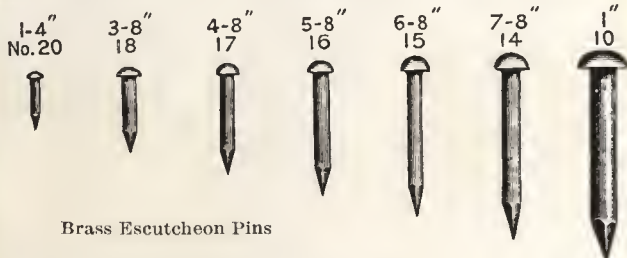


Brass Nails and Escutcheon Pins

Carried in Stock, Ready for Immediate Shipment



Cut Nails



Brass Escutcheon Pins

BRASS WEATHERSTRIPPING NAILS
Flat Head, Needle Point and Barbed

Packed in 1 and 5-Pound Packages, and 100-Pound Kegs.
Also Sold in Bulk.

Length in Inches	B. & S. Gauge
$\frac{5}{8}$	18
$\frac{3}{4}$	17

BRASS AND MUNTZ METAL SLATERS' NAILS

A tough, durable Nail, easily driven. A non-rusting product at an economical price.
Packed in kegs of 100 pounds and 5-pound packages.

LENGTHS: $1\frac{1}{4}$ inches and $1\frac{1}{2}$ inches.

ZINC CUT NAILS

Packed in Kegs of 100 Pounds and 5-Pound Packages.

LENGTHS: $1\frac{1}{4}$ inches and $1\frac{1}{2}$ inches.

ROUND HEAD BRASS ESCUTCHEON PINS

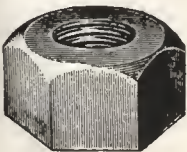
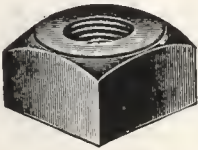
Stubb's Gauge No.	Lengths Carried in Stock, Inches			
10		$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$
11		$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$
12		$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$
13		$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$
14		$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$
15		$\frac{1}{4}$	$\frac{1}{2}$	$\frac{5}{8}$
16	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{5}{8}$
17		$\frac{1}{4}$	$\frac{1}{2}$	$\frac{5}{8}$
18	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{5}{8}$
19		$\frac{1}{4}$	$\frac{1}{2}$	$\frac{5}{8}$
20		$\frac{1}{4}$	$\frac{1}{2}$	$\frac{5}{8}$

Nickel and Silver-Plated, Round Head Brass Escutcheon Pins, Barbed Shank Brass Pins, Headless and Special Brass Pins, Iron Escutcheon Pins, and Copper or Brass Rivets and Nails of any description furnished promptly to special order.

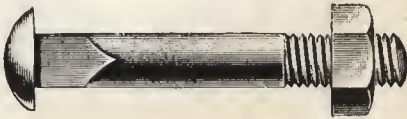
Brass Bolts and Nuts



Carried in Stock, Ready for Immediate Shipment



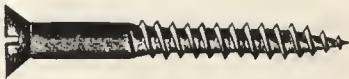
Hexagon Nut



Bolt and Hexagon Nut



Round Head Screw



Flat Head Screw

ROUND AND FLAT HEAD MACHINE SCREWS OR CORNICE BOLTS In Packages of 1 Gross



Flat Head Machine Screw

	Number of Thread Diameter	Length in Inches					
Round Head	10—24	1/2	5/8	3/4	1	1 1/4	
Round Head	1/4—20	1/2	5/8	3/4	1	1 1/4	
Flat Head	10—24	1/2	5/8	3/4	1	1 1/4	
Flat Head	1/4—24	1/2	5/8	3/4	1	1 1/4	



Round Head Machine Screw

Hexagon Head Machine Bolts, Square and Hexagon Wood Screws, Set Screws, and all Special Screw Machine Products will be furnished according to specifications.

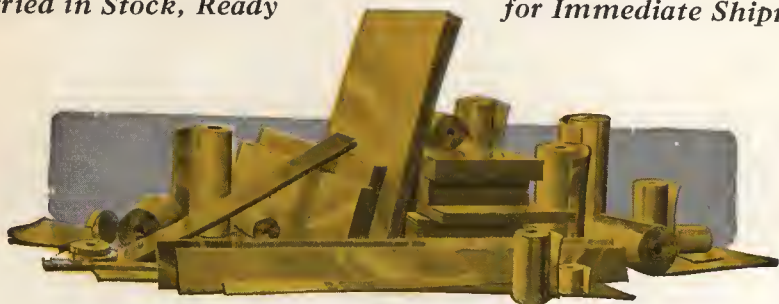
Upon receipt of blue print or sketch, and full description, estimates will be given separately.



Roll and Sheet Brass

Carried in Stock, Ready

for Immediate Shipment



HALF HARD SHEET BRASS

Approximate Weight In Pounds Per Sq. Ft.	Thickness in Inches and B. & S. Gauge	Width in Inches	Length
16.52	$\frac{3}{8}$	12	8-10'
11.02	$\frac{1}{4}$	12	8-10'
5.66	$\frac{1}{8}$	12	8-10'
4.49	No. 10	12	8-10'
3.56	No. 12	12	8-10'
2.82	$\frac{1}{16}$	12	8-10'
2.24	No. 16	12	8-10'

ROLL BRASS

Weight in Pounds Per Sq. Ft.	Temper	Width in Inches	Thickness in B. & S. Gauge
2.24	Half Hard	12	16
1.78	Soft	12	18
1.78	Half Hard	12	18
1.78	Half Hard	14	18
1.58	Soft	12	18
1.41	Soft	12	19
1.41	Half Hard	12	20
1.12	Half Hard	12	22
.885	Half Hard	12	24
.702	Half Hard	12	26
.557	Half Hard	12	28
.444	Soft	12	30
.444	Spring	12	30
.352	Soft	12	32
.352	Spring	12	32
.279	Soft	12	34
.279	Spring	12	34
.221	Soft	2 $\frac{1}{2}$	36

PHOSPHOR BRONZE

Spring Temper

PHOSPHOR BRONZE IN ROLLS

Spring Temper

Phosphor Bronze is a true bronze of Copper and Tin with the addition of Phosphorus, and, in the case of bearing metal, with the addition of lead as an anti-friction ingredient.

Phosphor Bronze comes in the form of rolled sheet and drawn wire and rods, with qualities and tempers adaptable to special requirements. It is an especially high quality metal with high tensile strength, designed to withstand unusual wear.

In Rolls of About 25 Pounds

Thickness In Inches and B. & S. Gauge	Width in Inches
$\frac{1}{2}$	
No. 16	12
No. 18	6
No. 20	6
No. 22	6
No. 24	6
No. 26	6
No. 28	6
No. 30	6

Weatherstripping Bronze



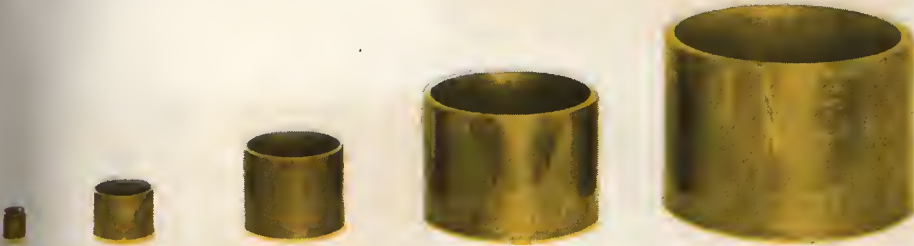
Weatherstripping Bronze and Roll Brass.

WEATHERSTRIPPING BRONZE

Spring temper; 6-point hard. Put up in coils with wooden cores weighing approximately 25 pounds to the coil. The metal is uniform to gauge, temper and color.

The following sizes and gauges are carried in stock ready for immediate shipment:

Width in Inches	B. & S. Gauge	B. & S. Gauge	B. & S. Gauge
1	31	32	33
1 1/8	31	32	33
1 1/4	31	32	33
1 5/8	31	32	33
1 3/4	31	32	33
1 7/8	31	32	33
2	31	32	33
2 1/4	31	32	33



Seamless Brass and Copper Tubes



Brass, Bronze and Copper Rods and Bars



Fancy Brazed Brass Tubes

When Ordering, Please State Number and Name of Pattern



No. 9—Plain Tre Foil

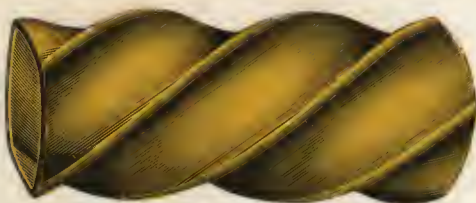
$\frac{15}{16}$ in. O. D.—.020

(Right Twist)

No. 62—Round Cable

$\frac{7}{16}$ in.—.040

Can also furnish Left Twist, subject to additional charge for tools



No. 705—Square Twist

$\frac{5}{8}$ in. to $1\frac{1}{4}$ in.—.040 to .050

Can also furnish Right Twist, if desired

(Left Twist)

No. 707—Round Fluted

With flutes varying from 12 to 56



No. 15—Round Fancy

$\frac{3}{8}$ — $\frac{7}{16}$ — $\frac{1}{2}$ — $\frac{5}{8}$ — $\frac{3}{4}$ in. O. D.

No. 765—Fancy Octagon

$\frac{13}{16}$ in.—.028

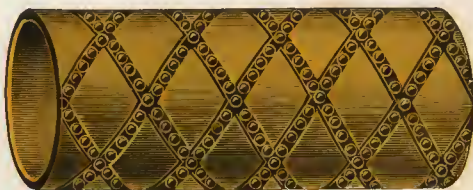


Fancy Brazed Brass Tubes

When Ordering, Please State Number and Name of Pattern

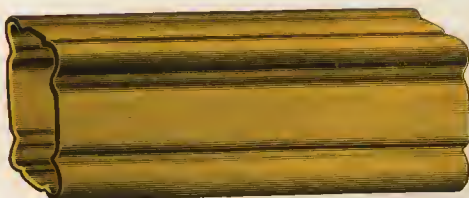


No. 726—Round Diamond Beaded



No. 46—Square Queen Anne
 $\frac{3}{4}$ in. and $\frac{1}{8}$ in. O. D.

No. 768—Fancy Square
 1 in.—.022 $1\frac{3}{8}$ in.—.025



(Left Twist)
No. 710—Corrugated Rope, Large Section
 Can also furnish Right Twist, if desired

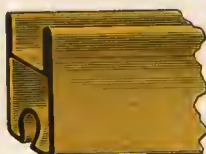
(Left Twist)
No. 778—Plain Rope
 Can also furnish Right Twist, if desired



Windshield Tubing



No. 501



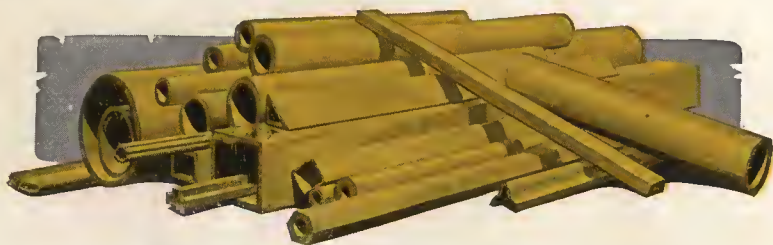
No. 502



No. 503



Seamless Brass Tubing



Carried in Stock, Ready for Immediate Shipment

HARD DRAWN SEAMLESS BRASS TUBING In 12-Foot Lengths

Size, Inches	B. & S. Gauge	Length, Feet
$\frac{5}{16}$	20	14
$\frac{1}{2}$	20	14
$\frac{5}{8}$	16	14
$\frac{3}{4}$	22	14
$\frac{7}{8}$	18	14
$\frac{1}{4}$	20	10
$\frac{1}{2}$	22	14
$\frac{3}{4}$	20	14
$\frac{7}{8}$	22	14
1	18	12
$1\frac{1}{8}$	18	14
$1\frac{1}{4}$	14	14
$1\frac{1}{2}$	16	14
$1\frac{3}{4}$	18	14
$1\frac{7}{8}$	8	14
2	16	14
$2\frac{1}{8}$	18	14
$2\frac{1}{4}$	14	14
$2\frac{1}{2}$	16	14
$2\frac{3}{4}$	18	14
$2\frac{7}{8}$	8	14
3	8	14
$3\frac{1}{4}$	16	14
$3\frac{1}{2}$	8	14
$3\frac{3}{4}$	8	14
4	8	12-14
$4\frac{1}{4}$	8	12-14
$4\frac{1}{2}$	8	12-14
$4\frac{3}{4}$	8	12-14
5	8	12-14
$5\frac{1}{4}$	8	12-14
$5\frac{1}{2}$	8	12-14
$5\frac{3}{4}$	8	12-14
6	8	12-14
$6\frac{1}{4}$	8	12-14
$6\frac{1}{2}$	8	12-14

SOFT SEAMLESS BRASS TUBING

Size, Inches	Gauge	Coils, Length in Feet
$\frac{1}{8}$	20 B&S	35 to 50
$\frac{1}{4}$	20 B&S	25 to 30
$\frac{3}{8}$	20 B&S	25 to 40
$\frac{1}{2}$	20 B&S	10 to 40
$\frac{3}{4}$	20 B&S	25 to 30
$\frac{7}{8}$	18 Stubs	14

HALF HARD SEAMLESS BRASS TUBING

Size, Inches	Gauge	Length, Feet
$\frac{1}{8}$	20 B&S	12
$\frac{1}{4}$	20 B&S	12
$\frac{3}{8}$	20 B&S	14
$\frac{1}{2}$	20 B&S	14

SQUARE BRAZED BRASS TUBING

Size, Inches	Gauge	Length, Feet
$\frac{1}{8}$	18 B&S	14
$\frac{3}{4}$	18 B&S	14
1	18 B&S	14

SPLIT BRASS TUBING

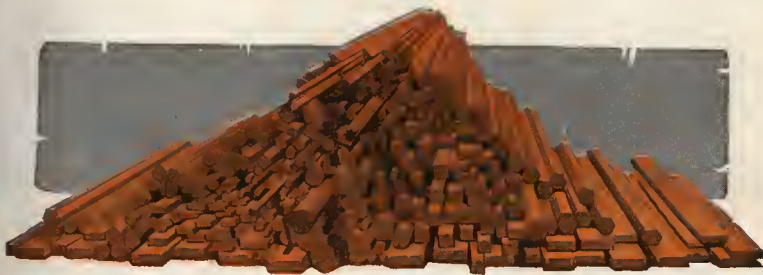
$\frac{3}{8}$ -inch, 20 B&S Gauge 10-foot Lengths.

SEMI-ANNEALED IRON PIPE SIZE TUBING In Lengths of 12 Feet

BRASS Size, Inches	COPPER Size, Inches
$\frac{1}{8}$	$\frac{1}{4}$
$\frac{1}{4}$	$\frac{3}{8}$
$\frac{3}{8}$	$\frac{1}{2}$
$\frac{1}{2}$	$\frac{3}{4}$
$\frac{3}{4}$	1
1	$1\frac{1}{4}$
$1\frac{1}{2}$	$1\frac{1}{2}$
2	2
$2\frac{1}{4}$	
3	
$3\frac{1}{2}$	
4	
5	

Naval Bronze and Copper

Rods and Bars



Carried in Stock, Ready for Immediate Shipment

ROUND NAVAL BRONZE RODS In 10 to 12-Foot Random Lengths

Diameter in Inches	Weight in Lbs. Per Lineal Ft.
$\frac{3}{16}$	.102
$\frac{1}{4}$	.181
$\frac{5}{16}$	.281
$\frac{3}{8}$	.405
$\frac{7}{16}$	.555
$\frac{1}{2}$	.724
$\frac{5}{8}$	1.123
$\frac{3}{4}$	1.62
$\frac{13}{16}$	1.891
$\frac{7}{8}$	2.20
$\frac{15}{16}$	2.53
1	2.88
$1\frac{1}{16}$	3.25
$1\frac{1}{8}$	3.64
$1\frac{1}{4}$	4.49
$1\frac{3}{8}$	5.44
$1\frac{1}{2}$	5.95
$1\frac{1}{2}$	6.479

RECTANGULAR COPPER BARS In 10 to 12-Foot Random Lengths

Diameter in Inches	Weight in Lbs. Per Lineal Ft.
$\frac{1}{16} \times 1$	.2412
$\frac{1}{8} \times \frac{3}{4}$	.3617
$\frac{1}{8} \times 1$	.4823
$\frac{1}{8} \times 1\frac{1}{2}$	.7235
$\frac{3}{16} \times 1$	.7235
$\frac{1}{4} \times 1$	.9646
$\frac{1}{4} \times 1\frac{3}{4}$	1.688
$\frac{1}{4} \times 2$	1.929
$\frac{1}{2} \times 2\frac{1}{2}$	4.823
$\frac{1}{4} \times 3$	2.894
$\frac{1}{4} \times 4$	3.858
$\frac{3}{8} \times 1\frac{1}{4}$	1.809
$\frac{1}{2} \times 2$	3.858
$\frac{7}{16} \times 1\frac{1}{4}$	2.110
1 x $1\frac{1}{4}$	4.823

SOFT AND COLD ROLLED ROUND COPPER RODS

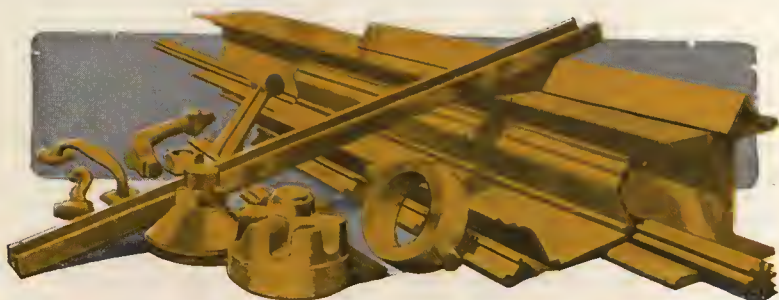
In 10 to 12-Foot Random Lengths

HEXAGONAL NAVAL BRONZE RODS In 10 to 12-Foot Random Lengths

Diameter in Inches	Weight in Lbs. Per Lineal Ft.
1	3.175
$1\frac{1}{2}$	7.144

Size in Inches	Weight in Lbs. Per Lineal Ft.
$\frac{1}{4}$	
$\frac{5}{16}$	.4256
$\frac{3}{8}$	.7567
$\frac{1}{2}$	1.1824
$\frac{5}{8}$	1.7027
$\frac{3}{4}$	2.3176
$\frac{7}{8}$	3.0276
1	4.7278
$1\frac{1}{4}$	6.8109
$1\frac{1}{2}$	

Extruded Shapes and Special Formed Goods



Extruded Brass, Bronze, Copper, and Angles, Channels, Tees, and various styles and shapes can be made from stock dies at our mill. Special shapes can also be made up from blue prints or drawings accompanying orders.



Corrugated Door Sill Moulding, 5 inches Wide



Plain Pattern Door Sill Moulding, 4 Inches Wide



Extruded Brass Door Sill Moulding.



STYLE A—Punched Brass Strip for Tile Flooring



STYLE B—Punched Brass Strip for Tile Flooring



STYLE C—Punched Brass Strip for Tile Flooring

Clean Hot Water

With Copper Boiler and Brass Pipe and Fittings

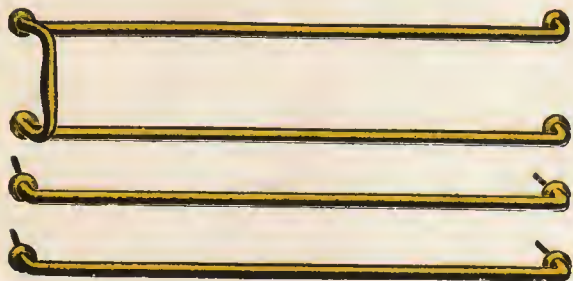


Hot water—steaming hot and **clean**—is a necessity in every home.

To insure a satisfactory hot water supply—a supply that will always be **clean** and hot—see to it that the source of your supply and the pipes that carry it to all parts of your house are rust-proof. A Copper boiler and Brass pipe and fittings are the best possible insurance against hot water troubles.

Brass and Bronze

Railings, Grilles, Fittings and Accessories



Grab and Push Bars



Push and Pull Plates



Door Pull



Sash Pull

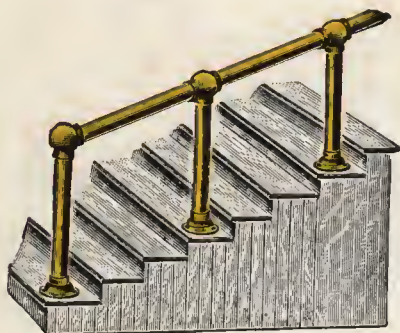


Brass and Bronze Kick Plate

We can supply brass railings for banks, offices, depots, restaurants, etc., according to specifications.

We can furnish especially designed push and grab guards, door guards, door pulls, sash pulls, kick plates, cast bronze tablets and name plates, and brass and bronze cast and drawn angles, channels and mouldings according to specifications. Quotation furnished upon receipt of specifications and sketch or blue print.

All standard sizes carried in stock ready for immediate shipment. Brass and Bronze Kick Plates can be supplied in all standard widths from 8 to 24 inches, and standard lengths from 18 to 32 inches.



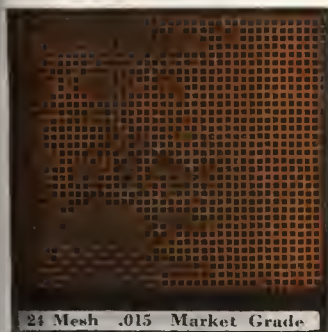
Stair Railing



Brass Gate

Brass, Bronze and Copper Screen Cloth

Carried in Stock, Ready for Immediate Shipment.



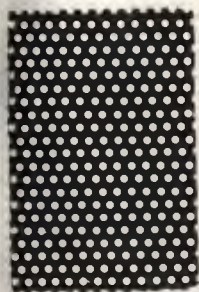
Copper and Bronze Wire Netting put up in rolls of 100 lineal feet, 18 inches wide, and every 2 inches wider up to and including 48 inches.



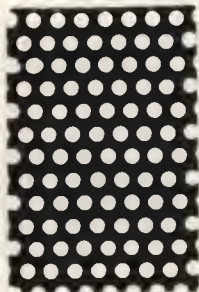
When ordering Wire Cloth, be sure to state size of opening and gauge of the wire. We can supply Wire Cloth for all purposes, made of any metal from which wire can be drawn.



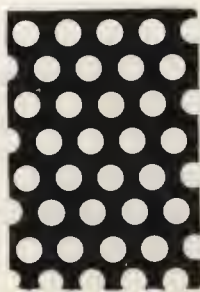
Perforated Metals



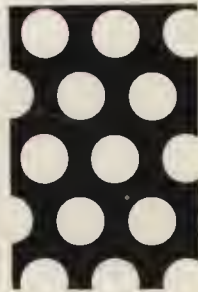
$\frac{1}{25}$ " Round Holes
.075" Centers



$\frac{1}{12}$ " Round Holes
 $\frac{1}{8}$ " Centers



$\frac{5}{64}$ " Round Holes
 $\frac{3}{16}$ " Centers



$\frac{1}{4}$ " Round Holes
 $\frac{3}{8}$ " Centers

Perforated Screens of any style or size can be furnished promptly. Perforated Metal is always made up to special order. When ordering, it is essential to give diameter of perforation, the exact spacing from center to center, the pitch of the holes, and the size of margins. A sketch or blue print of the style desired is preferable.



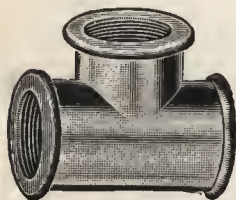
Brass Pipe Fittings

IRON PIPE SIZES

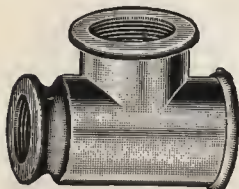
Carried in Stock, Ready for Immediate Shipment

**FURNISHED
IN FOLLOWING
SIZES**

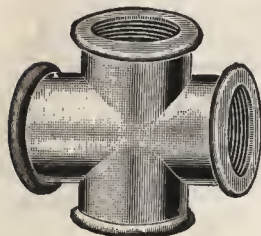
$\frac{1}{8}$ -in.
 $\frac{1}{4}$ -in.
 $\frac{3}{8}$ -in.
 $\frac{1}{2}$ -in.
 $\frac{5}{8}$ -in.
 $\frac{3}{4}$ -in.
 1 -in.
 1 $\frac{1}{4}$ -in.
 1 $\frac{1}{2}$ -in.
 1 $\frac{3}{4}$ -in.
 2 -in.



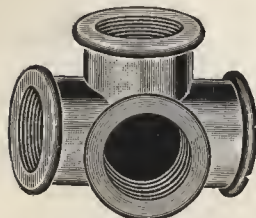
Tee



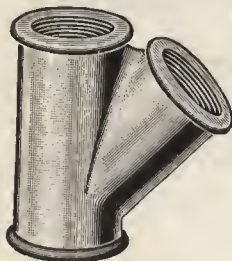
Reducing Tee



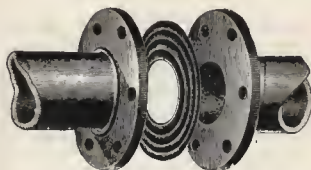
Cross



Cross with Outlet



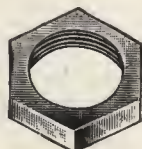
Y Branch



**CORRUGATED COPPER
GASKETS**

**Furnished in All Standard
Sizes.**

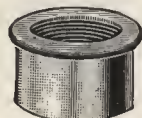
For Lip Unions, Flange Unions,
Plain and Ball Joints, Connecting
Steam, Air, Gas or Water Pipes. Also
for Cylinder Heads, Steam Chests,
e^tc.



Lock Nut



Bushing



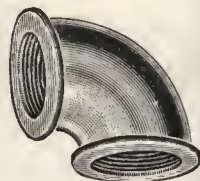
Plain Cap



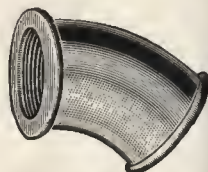
Plug



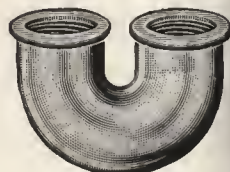
Nipple



90-Degree Elbow



45-Degree Elbow



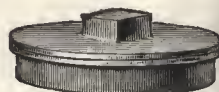
Return Bend



Union



Coupling

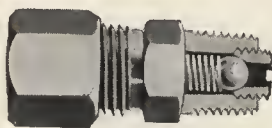


Screw Cap or Trap Screw

Compression Fittings



No. 1



No. 2



No. 3



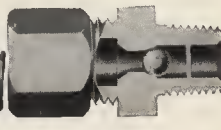
No. 4



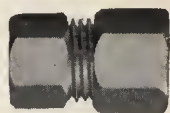
No. 5



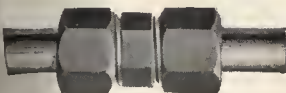
No. 6



No. 7



No. 8



No. 9



No. 10



No. 11

BALL SOLDERLESS FITTINGS

Nos. 1 to 8

Standard Sizes Assembled Including Nuts and Sleeves

Outside Diam., ins.—

$\frac{1}{8}$, $\frac{1}{16}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, $\frac{1}{2}$, $\frac{3}{4}$

Pipe Thread, ins.—

$\frac{1}{8}$, $\frac{1}{16}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, $\frac{1}{2}$, $\frac{3}{4}$

BRAZING OR SOLDERING FITTINGS

Nos. 9 to 11

Outside Diam., ins.— $\frac{1}{8}$, $\frac{1}{16}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$

Pipe Thread, ins.— $\frac{1}{8}$, $\frac{1}{16}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$

S. A. E. FLARED TUBE FITTINGS

Nos. 12 to 14

Sizes, ins.

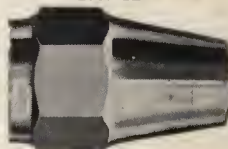
$\frac{1}{8}$ nut
 $\frac{1}{16}$ nut
 $\frac{1}{4}$ nut
 $\frac{3}{8}$ nut
 $\frac{1}{2}$ nut
 $\frac{3}{4}$ nut
 $\frac{1}{2}$ nut

Thread, ins.

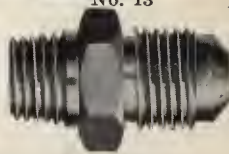
$\frac{1}{8}$ x 24
 $\frac{1}{16}$ x 24
 $\frac{1}{4}$ x 20
 $\frac{3}{8}$ x 20
 $\frac{1}{2}$ x 18
 $\frac{3}{4}$ x 16
 $\frac{1}{2}$ x 16



No. 12



No. 13



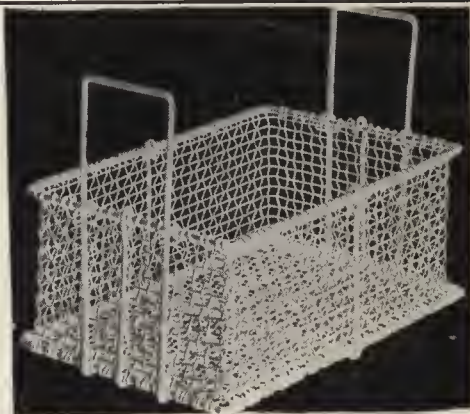
No. 14

Dipping Baskets

Whatever solution you may be using, you will find in our line of Dipping Baskets a metal suited to your requirements. In every case the bracing of the basket is adequate to the load which the basket is to handle and proportioned to the weight of the wire.

We can furnish any standard design in copper, brass, aluminum, mone metal, wood, metal, steel and nickel chromium.

When ordering, state style, shape, dimensions (whether inside or outside measure), size of wire and mesh, and, if with handle, style of handle wanted.





Aluminum Sheets



Aluminum is a non-rusting element that can be made into sheets, rods, wire, tubes, rivets and bars. Its weight is approximately $\frac{1}{3}$ that of copper.

Carried in Stock, Ready for Immediate Shipment

ALUMINUM SHEETS H Hard Temper

B. & S. Gauge	Decimal Thickness	Wgt. per Sq. ft.	Size in Inches
2	.257	3.628	30x36
2	.257	3.628	24x72
5	.1819	2.562	24x72
8	.1285	1.809	24x72
14	.0641	.902	18x72
14	.0641	.902	24x72
16	.0508	.715	18x72
16	.0508	.715	24x72
18	.0403	.567	18x72
18	.0403	.567	24x72
20	.0320	.450	18x72
20	.0320	.450	24x72
24	.0201	.2831	18x72
24	.0201	.2831	24x72
26	.0159	.224	18x72
26	.0159	.224	30x72
28	.0126	.178	18x72
28	.0126	.178	24x72
28	.0126	.178	30x72
30	.010	.141	30x72

Aluminum Tubes, Rods and Rivets are made to specifications at the mill and can be furnished in all kinds of tempers and degrees of hardness.

Nickel Silver Sheets



Nickel Silver is made in varying percentages of composition. The standard content is 10% nickel, 15% nickel, 18% nickel, and 25% nickel. The 18% nickel, grade "A" quality, is most generally used, and is the composition of the Nickel Silver Sheets that we carry regularly.

Other sizes, gauges and tempers furnished from mill to specifications.

Carried in Stock Ready for Immediate Shipment

18% Grade "A", Nickered Silver Polished on One Side Half Hard Temper

Size in Inches	B. & S. Gauge
4 x 96	24
6 x 96	24
8 x 96	24
9 x 96	24
10 x 96	24
12 x 96	24
20 x 96	24
20 x 120	24
24 x 96	24
26 x 96	24
30 x 96	24
30 x 120	22
36 x 96	22
36 x 96	24

18% Grade "A", Nickel Silver Unpolished $\frac{1}{8}$ Hard Temper

Size in Inches	B. & S. Gauge
12 x 96	14
12 x 96	16
12 x 96	18
14 x 96	22
14 x 96	24



"Old Chateau" Zinc Roofing

MADE FROM PURE ZINC SHEETS

"Old Chateau" Zinc Roofing has been manufactured in this country for about 10 years. As a roofing metal, zinc has been used with success for over 100 years in Europe. Many of the original installations made a century ago are still intact and are giving service. Zinc for roofing is being used more extensively in this country, its adaptation in many particular places where non-corrosive and rust-resisting material is necessary, is gaining for it universal recognition by architects and engineers. Zinc for roofing is economical in that it has no up-keep cost, no paint being necessary to add to its life. It is very easy to apply, and it always has a salvage value.

"Old Chateau" Corrugated Zinc Roofing is used in many places, such as piers and docks where it is subjected to salt air atmosphere, on glass factories, warehouses, coal tipples, chemical and pigment manufacturing plants, railroad shops, mines, etc.



One and One-Quarter Inch Corrugated "Old Chateau" Zinc Roofing

Each sheet has twenty full corrugations, $1\frac{1}{4}$ inches from center to center. Full width, 24 inches when lapped one corrugation.

Approximate weights per square:
No. 9 Gauge, 76 lbs., No. 10 Gauge, 84 lbs.; No. 11 Gauge, 101 lbs. All lengths.

STANDARD 5-8 INCH DEEP Two and One-Half Inch Corrugated Recommended for Ordinary Siding

Also for roofing over solid sheathing or short open spans.

Each sheet has ten full corrugations, $2\frac{1}{2}$ inches from center to center.

Full widths 26 inches both corrugations down. Covering width 24 inches when lapped one corrugation, or $2\frac{1}{2}$ inches corrugated sheets measuring $27\frac{1}{2}$ inches wide after forming, which will cover 24 inches after allowing one and one-half corrugations for side lap. All lengths.

Approximate Weights Per Square

No. 9 Zinc Gauge.	73 pounds
No. 10 Zinc Gauge.	81 pounds
No. 11 Zinc Gauge.	97 pounds
No. 12 Zinc Gauge.	113 pounds
No. 13 Zinc Gauge.	129 pounds
No. 14 Zinc Gauge.	145 pounds
No. 15 Zinc Gauge.	161 pounds
No. 16 Zinc Gauge.	182 pounds

Maximum Roof Purlin Spacing Recommended for "Old Chateau" Pure Zinc Roofing Standard $\frac{5}{8}$ Inch Deep Corrugated

9 Zinc Gauge (.018)	18 Inches
10 Zinc Gauge (.020)	24 Inches
11 Zinc Gauge (.024)	30 Inches
12 Zinc Gauge (.028)	36 Inches
13 Zinc Gauge (.032)	42 Inches
14 Zinc Gauge (.036)	48 Inches
15 Zinc Gauge (.040)	52 Inches

SPECIAL 7-8 INCH DEEP

Two and One-Half Inch Corrugated Pure Zinc Recommended For Roofing, also For Siding Where Extra Rigidity is Required

Deep corrugations greatly increase strength and rigidity of sheet.

Saves weight in material required.

Furnished any width desired up to 36 inches weather exposure, with either one or one-half corrugations side lap. Wide sheets save considerable in side laps, and cost of application. A remarkably strong corrugated sheet. Deep corrugations afford complete protection against leaks. Any length not over 12 feet.

Where in doubt as to sizes and zinc gauges needed send us Blue Prints.

We will then supply complete estimate list and lump sum quotation, including fastenings, flashing, etc.

Approximate Weights Per Square

No. 9 Zinc Gauge,	79 pounds
No. 10 Zinc Gauge,	88 pounds
No. 11 Zinc Gauge,	112 pounds
No. 12 Zinc Gauge,	131 pounds
No. 13 Zinc Gauge,	149 pounds
No. 14 Zinc Gauge,	168 pounds
No. 15 Zinc Gauge,	187 pounds



Maximum Roof Purlin Spacing Recommended for "Old Chateau" Pure Zinc Roofing Special $\frac{7}{8}$ Inch Deep Corrugated

9 Zinc Gauge (.018)	30 Inches
10 Zinc Gauge (.020)	36 Inches
11 Zinc Gauge (.024)	40 Inches
12 Zinc Gauge (.028)	45 Inches
13 Zinc Gauge (.032)	52 Inches
14 Zinc Gauge (.036)	57 Inches
15 Zinc Gauge (.040)	60 Inches

Roll and Sheet Zinc



Our Roll and Sheet Zinc is made from electrolytic refined metal and is 99.9% pure. It is the finest grade of commercial zinc obtainable. Can be hemmed, formed, seamed, stamped and spun.

Sheet Zinc regularly comes packed in casks, or, if specified, in flat crates. Roll or Ribbon Zinc comes in coils weighing about 25 to 35 pounds, packed securely in boxes.

A suggestion for the working of zinc that is well to remember, is to arrange to have the metal in a warm atmosphere, about 70° to 80° Fahrenheit, in order to eliminate any chance of fracturing, which might develop if worked when in cold or freezing temperature. Form sheets against the grain which always runs parallel to the length, in order to eliminate fracture of the metal.



Carried in Stock, Ready for Immediate Shipment

SHEET ZINC

Zinc Gauge	Size, in Inches	Theoretical Wt. per Sheet in Lbs.	No. Lbs. Per Sq. Ft.	Decimal Thickness	Equivalent in U. S. S. Gauge
5	38½ x 50	5	.375	.010	32
6	36 x 84	9½	.450	.012	30
7	36 x 84	11	.525	.014	29
9	14 x 20	1⅜	.675	.018	26
9	30 x 96	13½	.675	.018	26
9	32 x 108	16	.675	.018	26
9	36 x 84	14	.675	.018	26
9	36 x 96	16	.675	.018	26
9	36 x 108	18	.675	.018	26
9	48 x 96	21½	.675	.018	26
9	50 x 84	20½	.675	.018	26
10	30 x 96	15	.750	.020	25
10	36 x 84	15¾	.750	.020	25
10	36 x 96	18	.750	.020	25
10	48 x 84	20	.750	.020	25
11	30 x 96	18	.900	.024	24
11	36 x 84	19	.900	.024	24
11	48 x 96	29	.900	.024	24
12	36 x 84	22½	1.05	.028	23
12	48 x 84	30	1.05	.028	23
12	48 x 96	33½	1.05	.028	23
12	60 x 96	42	1.05	.028	23
13	36 x 84	25	1.2	.032	22
13	60 x 84	40	1.2	.032	22
14	20 x 96	17¾	1.35	.036	20
14	36 x 84	28½	1.35	.036	21
15	36 x 84	31½	1.5	.040	19 to 20
15	48 x 96	48	1.5	.040	19 to 20
16	36 x 84	35	1.687	.045	18 to 19
17	36 x 84	39½	1.875	.050	18
20	36 x 84	55	2.625	.070	15
21	36 x 72	53	3.00	.080	14
¼ in.	50 x 84	137	4.70	.125	11



Engravers' and Electrotypers' Metals

*Carried in Stock, Ready for
Immediate Shipment*



All of our Engraver's and Electrotyper's metals are manufactured by different mills skilled in their respective line of manufacture.

The proper alloy, temper and finish are insured in all of our engraving metals, as each manufacturer controls the process from the melting and refining of the ingot metal down to its packing, preparatory to shipment. The result of years of experience in the art and craft of making Engravers and Electrotypers' Brass, Copper and Zinc is handed to you in the products we have to offer.

ENGRAVERS' BRASS PLATES Sizes Carried in Stock

Thickness, Inches	Width, Inches	Length, Feet
$\frac{1}{8}$	12	8 to 10
$\frac{1}{16}$	12	8 to 10
$\frac{1}{4}$	12	8 to 10
$\frac{3}{4}$	12	8 to 10

ENGRAVERS' COPPER Hussy's Satin Finish Sizes Carried in Stock

No. 16 Gauge, Size	No. 18 Gauge, Size
14 x 34 ins.	22 x 28 ins.
15 x 36 ins.	
18 x 22 ins.	
22 x 28 ins.	

SHEET COPPER ANODES Trimmed and Untrimmed

Made from the best grade of selected copper, uniform in quality and over 99-9/10% pure.

Various thicknesses and sizes made to special order with holes drilled.

EDES' FAST ETCHING ENGRAVERS' ZINC Sizes Carried in Stock

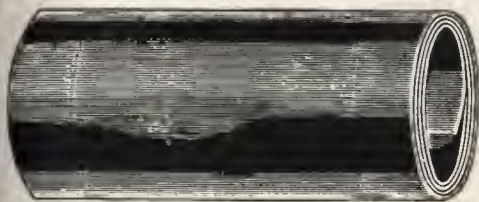
No. 16 Gauge Size, Ins.	No. 11 Point, Size, Ins.
11 x 14	22 x 28
14 x 17	
14 x 34	
15 x 18	
15 x 36	No. 12 Gauge
16 x 20	22 x 28
16 x 36	No. 14 Gauge
17 x 22	
17 x 24	
18 x 22	
18 x 36	Buffed, For Ben Day Work
20 x 30	
22 x 28	
22 x 36	
30 x 40	Hard, For Special Color Work
	15 x 36

Sheet Block Tin



Carried in Stock, Ready for Immediate Shipment

Table of Weights and Thicknesses of Sheet Block Tin



Wt. in Lbs. per Sq. Ft.	Thickness in Inches	Wt. in Lbs. Per Sq. Ft.	Thickness in Inches
1	1/40	3 1/2	1/11
1 1/2	1/27	4	1/10
2	1/20	5	1/8
2 1/2	1/16	10	1/4
3	1/13	20	1/2

BLOCK TIN PIPE

Inside diameter, outside diameter and weight per running foot.

Inside Diam- eter	Outside Diam- eter	Wt. per Running Foot In Ozs.	Inside Diameter	Outside Diameter	Wt. per Running Foot In Ozs.	Inside Diameter	Outside Diameter	Wt. per Running Foot In Ozs.
1/8	3/16	1-	5/16	7/16	3-2/3	1/2	43/64	8
1/8	1/4	1-4/5	5/16	1/2	5-2/3	1/2	45/64	10
1/8	9/32	2-2/3	5/16	9/16	9	1/2	3/4	12-1/2
1/8	5/16	3-1/3	3/8	7/16	2	5/8	25/32	9
3/16	1/4	1	3/8	1/2	4	5/8	13/16	12
3/16	9/32	1-4/5	3/8	9/16	7-1/3	5/8	57/64	16
3/16	5/16	2-1/2	3/8	5/8	9-2/3	3/4	57/64	9
3/16	3/8	4-1/3	3/8	11/16	12-1/2	3/4	15/16	12
3/16	7/16	6-1/6	7/16	1/2	2	3/4	63/64	16
1/4	9/32	3/4	7/16	9/16	5-1/3	1	1-1/8	12
1/4	5/16	1-1/3	7/16	5/8	7-2/3	1	1-3/16	16
1/4	3/8	3-1/6	1/2	19/32	4	1-1/4	1-7/16	20
1/4	7/16	5-1/6	1/2	5/8 scant	5	1-1/4	1-1/2 full	28
1/4	1/2	7-1/2	1/2	5/8 full	5-1/2	1-1/2	1-11/16	24
5/16	3/8	1-2/3	1/2	41/64	6	2	2-3/16 full	32

Average weight of tin pipe in coils, 50 lbs.

Average weight of tin pipe in reels, 300 lbs.

Nickel Zinc

Carried in Stock Ready for Immediate Shipment.

Nickel Zinc is a product resulting from a special process of amalgamation of nickel with zinc. It is then polished. A surface is produced which becomes an integral part of the zinc. It will not crack or peel and will stand bending and forming.

It has over a hundred uses, principle among these being covering table tops, kitchen sinks and drain boards, cabinet trimmings, specialties, etc.

SIZES

No. 9 Zinc Gauge

30 x 60 ins.
32 x 54 ins.
30 x 96 ins.

36 x 84 ins.
36 x 96 ins.

Packed in 100 pound Flat Crates.

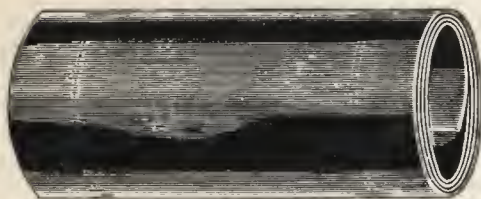


APOLLO-NICKELZINC
PURE NICKEL SURFACE NOT RUSTIC STAINLESS



Lead Sheets

CUT AND FULL SHEETS



Sheet Lead has been used successfully for many years for roofing, flashings and valleys.

There are three classifications of Sheet Lead, as follows:

1. Antimonial.
2. Chemical.
3. Commercial.

Commercial Lead is always furnished on orders unless otherwise specified.

Table of Weights and Thicknesses of Sheet Lead

Weight in Lbs. Per Sq. Ft.	Thickness In Inches	Weight in Lbs. Per Sq. Ft.	Thickness In Inches
1	1/64	6	3/32
1½	1/43	8	1/8
2	1/32	16	1/4
2½	1/24	30	1/2
3	3/64	60	1
4	1/16		

STOCK SIZES OF SHEET LEAD

Pounds to the Sq. Ft.	Thickness Nearest Fraction of Inch	Average Size of Sheet	Average Weight of Roll in Lbs.
1½	1/64	6 ft. 6 ins. x 12 ft.	117
2	1/32	8 ft. x 16 ft.	240
2½	3/64	8 ft. x 18 ft.	360
3	1/20	8 ft. 6 ins. x 20 ft.	510
3½	1/20	8 ft. 6 ins. x 20 ft.	595
4	1/16	8 ft. 6 ins. x 20 ft.	745
4½	1/15	8 ft. 6 ins. x 22 ft.	841
5	1/14	8 ft. 6 ins. x 22 ft.	935
6	1/12	8 ft. 6 ins. x 22 ft.	1122
7	1/10	8 ft. 6 ins. x 22 ft.	1300
8	1/8	8 ft. 6 ins. x 22 ft.	1496

Monel Metal Sheets

STOCK SIZES

No. 22—U. S. S. Gauge—36 x 96—No. 3 Grind Surface One Side.

No. 24—U. S. S. Gauge—36 x 96—No. 3 Grind Surface One Side.

No. 26—U. S. S. Gauge—36 x 96—No. 3 Grind Surface One Side.

Monel Metal is a natural nickel-copper alloy of high nickel content. The approximate chemical composition is nickel, 70%, copper, 26%, manganese, .04%, and all other impurities, less than 1½%.

This product has come into wide usage recently. It has exceptionally high tensile strength, is resistant to acid and corrosion and will work with relative ease. It possesses electrical properties, and has forging, rolling, annealing and machining qualifications.

Monel Metal is made into sheets, rods, wire, tubes, castings, forgings, pipe fittings, rivets, bolts, washers, etc.

Polished surfaces in other sizes and gauges than those listed above can be furnished on orders by special rolling at the mill.

Sheet Metal Screws

HARDENED SELF-TAPPING

Parker-Kalon Hardened Self-Tapping Sheet Metal Screws are steel Screws hardened in such a manner that they cut a thread in sheet metal without stripping their own thread. They function in sheet metal the same as a tap does in iron or steel. The only tool needed to make a permanent fastening with these Screws is a stout screw driver.

More than 35,000 sheet metal workers and manufacturers of all kinds of sheet metal products are using them in place of stove bolts and rivets with savings of from 50% to 75% in time and labor.

Whether you do general sheet metal work; make stoves, ovens, furnaces, ventilators, automobile bodies, refrigerators, metal furniture, railway cars or anything else from sheet metal, you can use these Screws successfully and profitably.

Furnished with either round or flat heads as illustrated.

Carried in stock ready for immediate shipment.

In Packages of One Gross

SIZES

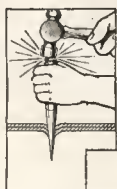
No. 6 x $\frac{3}{8}$ in.
No. 7 x $\frac{1}{2}$ in.

No. 10 x $\frac{3}{4}$ in.
No. 10 x $1\frac{1}{4}$ in.

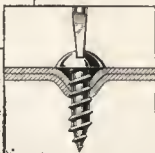
No. 14 x $1\frac{1}{2}$ in.
No. 14 x $1\frac{3}{4}$ in.



Make Fastenings to Sheet Metal in 2 Easy Operations



1st. Punch (or drill) a hole slightly smaller than the diameter of the Screw being used (Note: The Screws will work equally well in a hole that is punched with a burr as shown, or punched or drilled clean.)



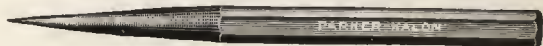
2nd. Turn the Screw in with a screw driver the same as you would a wood screw in wood.

PARKER-KALON STOP PUNCHES



These Punches are designed especially for use with Hardened Self-Tapping Sheet Metal Screws where a pierced hole is practicable. They are made in four sizes—No. 6, No. 7, No. 10 and No. 14—for use with Screws of corresponding diameters. The "stop" or shoulder prevents the Punch from being driven too far, assuring holes of exactly the right size.

PARKER-KALON PLAIN PUNCHES



If you prefer making the holes with an ordinary prick punch, the Parker-Kalon Plain Punch is as good as any and better than most.

Hardened Masonry Nails



Parker-Kalon Hardened Masonry Nails provide the sheet metal industry with something it has long needed—a simple, inexpensive yet thoroughly satisfactory means of making fastenings to brick, concrete, mortar and other masonry. For such work as hanging ventilating ducts, attaching sheet metal shields, lagging, etc.; fastening leader and gutter pipe; attaching roof flashings; erecting cornices, skylight, etc., these Nails will save you a great deal of time, labor and money. In the first place, they cost less than expansion bolts, hooks, spikes and other things that are now being used for the purpose. And, secondly, they are cheaper to use. You don't have to drill holes for the Nails (unless the material is unusually hard and tough, in which case it is advisable to drill a hole first to give the Nail a start.

Packed in Boxes of 100 Nails
SIZES: $\frac{1}{4}$ x 1 inch; $\frac{1}{4}$ x $1\frac{1}{2}$ inch; $\frac{1}{4}$ x 2 inch.

PARKER-KALON SHUR-GRIP Soldering Iron Handles

Parker-Kalon Shur-Grip Solder Iron Handles.



The Shur-Grip Soldering Iron Handle eliminates all the troubles you have with ordinary handles. It cuts a thread on the stem of the solder iron as it is being screwed on. Goes on like a nut on a bolt. Once on, it stays on. Can't get loose or come off unless unscrewed. Safe and comfortable to use. Can't split, can't come off, won't burn, stays cool—will outlast six ordinary handles. Pays for itself many times over in the time and labor it saves.

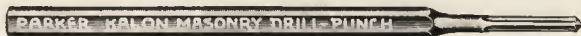


Showing inside construction of the Shur-Grip. The heat escapes through the hole in the direction indicated by arrows.

Made in 3 sizes:

No. 7—For $1\frac{1}{2}$ —4-lb. Soldering Copper.
No. 8—For 4—8-lb. Soldering Copper.
No. 9—For 8—12-lb. Soldering Copper.

PARKER-KALON MASONRY DRILL PUNCH



A quick cutting drill especially designed for making holes in masonry for Hardened Masonry Nails, in such instances where it is necessary to drill holes for them.

Sizes, Inches: $\frac{1}{4}$ x 1 $\frac{1}{4}$ x $1\frac{1}{4}$ $\frac{1}{4}$ x 2

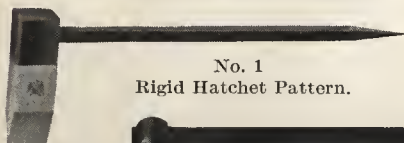


Metal Workers' Tools

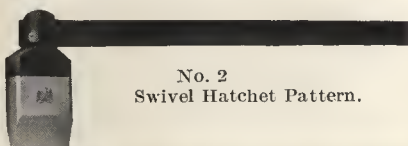
SOLDERING COPPERS

SIZES OF SOLDERING COPPERS CARRIED IN STOCK

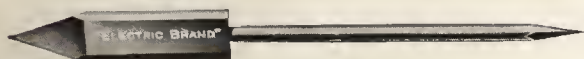
Weight, Per Pair, in Pounds									
1/2	3/4	1	1 1/2	2	2 1/2	3	3 1/2		
4	5	6	7	8	10	12	20		



No. 1
Rigid Hatchet Pattern.



No. 2
Swivel Hatchet Pattern.



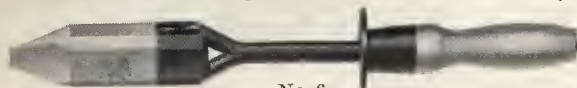
No. 3
Sharp Point or Tinnors' Pattern.



No. 4
Chisel Point or Bottom Pattern.



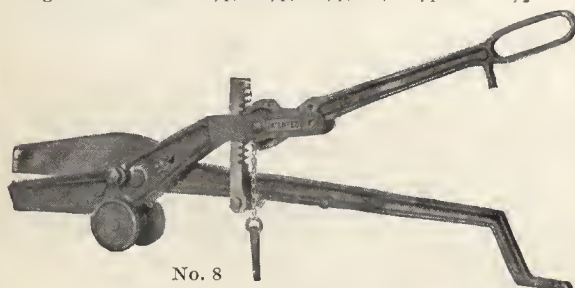
No. 5
Chisel Point or Bottom Pattern.



No. 6
Roofing Pattern With Handle and Shield.



No. 7
Bench Shears
Lengths in Inches: 10 1/4, 11 1/4, 12 1/4, 13, 14 1/4 and 15 1/2.



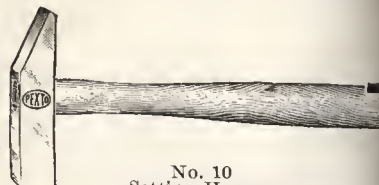
No. 8

"GIANT ECONOMY" SHEARS

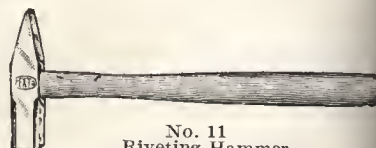
"Giant Economy" Shears are adapted to any class of work. For heavy work the stationary arm is clamped in the vise. For light work the rack bar may be entirely disengaged from the gear, and pin inserted through the movable members of the upper handle and used as ordinary shears.

The strength of these shears is in the gear-compound leverage. Exhaustive engineering tests have proven the principle of construction and operation. Will cut 1/8-inch thick sheet metal with 60-pound pressure.

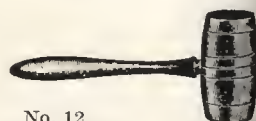
Weight of shears, 25 lbs., length over all, 36 ins., length of blade 9 ins.



No. 10
Setting Hammer



No. 11
Riveting Hammer

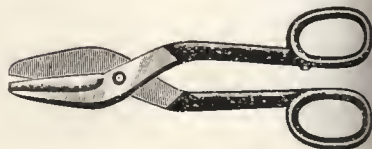


No. 12
Tinnors' Mallet



No. 13
Acid Swab

No. 14
Copper Hammer



No. 14
Tinnors' Snips

Lengths, in Inches: 7 1/4, 8 1/2, 10, 11 1/4, 12 1/4, 13, 14 1/4 and 15 1/2.



No. 15
Scroll and Circle Snips
Lengths, in Inches: 10 1/4, 11 1/4, 12 1/4, 13, 14 1/4 and 15 1/2.

Brass, Copper & Monel Metal Sheets



Weight in Pounds Per Square Foot.

COPPER, BRASS AND NICKEL SILVER

MONEL METAL

Thickness			Lbs. per Sq. Ft.		
B. & S. Gauge No.	Decimal Equivalent in Inches	Nearest Fraction in Inches	Copper	Brass	18% Nickel Silver
0000	.4600	29/64+	21.30	20.27	20.95
000	.4096	13/32	18.97	18.05	18.65
00	.3648	23/64+	16.89	16.07	16.61
0	.3249	21/64	15.04	14.31	14.79
1	.2893	19/64—	13.39	12.75	13.17
2	.2576	1/4+	11.93	11.35	11.73
3	.2294	15/64—	10.62	10.11	10.45
4	.2043	13/64	9.460	9.003	9.300
5	.1819	3/16—	8.424	8.017	8.284
6	.1620	5/32+	7.502	7.139	7.377
7	.1443	9/64+	6.681	6.358	6.570
8	.1285	1/8+	5.949	5.662	5.851
9	.1144	7/64+	5.298	5.042	5.210
10	.1019	7/64—	4.718	4.490	4.640
11	.09074	3/32—	4.201	3.998	4.132
12	.08081	5/64+	3.741	3.561	3.679
13	.07196	5/64—	3.332	3.171	3.277
14	.06408	1/16+	2.967	2.824	2.918
15	.05707	1/16—	2.642	2.515	2.598
16	.05082	3/64+	2.393	2.239	2.314
17	.04526	3/64—	2.096	1.994	2.061
18	.04030		1.866	1.776	1.835
19	.03589		1.662	1.582	1.63
20	.03196	1/32+	1.480	1.408	1.455
21	.02846	1/32—	1.318	1.254	1.296
22	.02535		1.174	1.117	1.154
23	.02257		1.045	.9946	1.028
24	.02010		.9307	.8857	.9153
25	.01790		.8288	.7887	.8150
26	.01594	1/64+	.7381	.7024	.7258
27	.01420	1/64—	.6573	.6255	.6464
28	.01264		.5853	.5570	.5756
29	.01126		.5212	.4961	.5126
30	.01003		.4642	.4417	.4565
31	.008928		.4134	.3934	.4065
32	.007950		.3681	.3503	.3620
33	.007080		.3278	.3120	.3224
34	.006305		.2919	.2778	.2871
35	.005615		.2600	.2474	.2557
36	.005000		.2315	.2203	.2277
37	.004453		.2062	.1962	.2027
38	.003965		.1836	.1747	.1805
39	.003531		.1635	.1556	.1608
40	.003145		.1456	.1386	.1432

Thickness			Weight
U. S. Standard Gauge	Approximate Thickness in Fractions of an Inch	Approximate Thickness in Decimal Parts of an Inch	Approx. Weight per Square Foot in Pounds
3	1/4	.25	11.493
4	15/64	.234375	10.774
5	7/32	.21875	10.056
6	13/64	.203125	9.338
7	3/16	.1875	8.619
9	5/32	.15625	7.183
10	9/64	.140625	6.465
11	1/8	.125	5.746
12	7/64	.109375	5.028
13	3/32	.09375	4.310
14	5/64	.078125	3.591
15	9/128	.0703125	3.232
16	1/16	.0625	2.873
17	9/160	.05625	2.586
18	1/20	.05	2.30
19	7/160	.04375	2.011
20	3/80	.0375	1.724
21	11/320	.034375	1.580
22	1/32	.03125	1.437
23	9/320	.028125	1.293
24	1/40	.025	1.149
25	7/320	.021875	1.005
26	3/160	.01875	.862

Standard practice on mill shipments is to crate so that gross weight per crate approximates 550 lbs.

These weights are theoretically correct but variations must be expected in practice.

To determine the weight of Nickel Silver Sheet other than 18%, multiply above weights for 18% Nickel Silver as follows: For 10% multiply by .9912. For 15% multiply by .9862. For 30% multiply by .9985.

Phosphor Bronze is slightly lighter in weight than pure Copper, but for all practical purposes the above weights of Copper Sheets can be used as equivalent in weight to the same sizes of Phosphor Bronze Sheet.

COPPER, NAVAL BRONZE, YELLOW METAL AND MANGANESE BRONZE SHEETS

Weights per Square Foot STUBS GAUGE

Gauge No.	THICKNESS INCHES	POUNDS PER SQUARE FOOT		Gauge No
	Decimal Equivalents	COPPER	Naval Bronze Yellow Metal Manganese Bronze	
0000	.454			0000
000	.425	19.75	18.70	000
00	.380	17.70	16.75	00
0	.340	15.80	14.96	0
1	.300	13.95	13.20	1
2	.284	13.20	12.50	2
3	.259	12.04	11.40	3
4	.238	11.06	10.54	4
5	.220	10.23	9.70	5
6	.203	9.44	8.90	6
7	.180	8.37	7.92	7
8	.165	7.67	7.26	8
9	.148	6.88	6.51	9
10	.134	6.23	5.90	10
11	.120	5.58	5.28	11
12	.109	5.06	4.80	12
13	.095	4.42	4.18	13
14	.083	3.86	3.65	14
15	.072	3.35	3.16	15
16	.065	3.02	2.86	16
17	.058	2.70	2.55	17
18	.049	2.28	2.16	18
19	.042	1.95	1.85	19
20	.035	1.63	1.54	20
21	.032	1.49	1.41	21
22	.028	1.30	1.23	22
23	.025	1.16	1.10	23
24	.022	1.02	.97	24
25	.020	.93	.88	25
26	.018	.84	.79	26
27	.016	.745	.70	27
28	.014	.65	.615	28
29	.013	.605	.57	29
30	.012	.56	.53	30
31	.010	.465	.44	31
32	.009	.42	.39	32
33	.008	.37	.35	33
34	.007	.325	.31	34
35	.005	.23	.22	35

THICKNESS OF STANDARD COPPER SHEETS



Rolled to Weight

Weight per Sq. Ft.		Thickness Inches	Nearest Gauge No.		Nearest Fraction
Ounces	Pounds		B. & S.	Stubs'	
	16	.3456	00	00	$\frac{11}{32}$
	15	.3240	0	0	$\frac{21}{64} +$
	14	.3024	1	1	$\frac{19}{64} -$
	13	.2808	1	2	$\frac{19}{64}$
	12	.2592	2	3	$\frac{9}{32} -$
	11	.2376	3	4	$\frac{15}{64}$
	10	.2160	4	5	$\frac{15}{64} +$
	9½	.2052	4	6	$\frac{13}{64}$
	9	.1944	4	6	
	8½	.1836	5	7	$\frac{3}{16} +$
	8	.1728	5	8	$\frac{11}{64}$
	7½	.1620	6	8	
	7	.1512	7	9	$\frac{5}{32} +$
	6½	.1404	7	10	$\frac{9}{64} -$
	6	.1296	8	10	$\frac{1}{8} -$
	5½	.1188	9	11	
80	5	.1080	10	12	$\frac{7}{64} +$
72	4½	.0972	10	13	$\frac{3}{32} -$
64	4	.0864	11	14	
56	3½	.0756	13	15	$\frac{5}{64} +$
48	3	.0648	14	16	$\frac{1}{16} -$
44	2¾	.0594	15	17	
40	2½	.0540	15	17	
36	2¼	.0486	16	18	$\frac{3}{64} -$
32	2	.0432	17	19	
28	1¾	.0378	19	20	
24	1½	.0324	20	21	$\frac{1}{32} -$
20	1¼	.0270	21	22	
18	1⅛	.0243	22	23	
16	1	.0216	23	24	
15	$\frac{15}{16}$	.0202	24	25	
14	$\frac{7}{8}$	.0189	25	26	
13	$\frac{13}{16}$	.0173	25	26	
12	$\frac{3}{4}$	.0162	26	27	$\frac{1}{64} -$
11	$\frac{11}{16}$	.0146	27	28	
10	$\frac{5}{8}$	.0135	27	29	
9	$\frac{9}{16}$	.0120	28	30	
8	$\frac{1}{2}$	.0108	29	31	
7	$\frac{7}{8}$	.0093	31	32	
6	$\frac{3}{8}$	.0081	32	33	

The + sign shows that the size is more than 1 per cent full.

The — sign shows that the size is more than 1 per cent scant.

Variations from these weights must be expected in practice.

For Estimating Safe Limit of Bursting Pressure for Brass and Copper Tubing in Pounds Per Square Inch

First.—Ascertain the tensile strength of the metal in the tube, which will vary according to the quality and temper: 40,000 lbs. per square inch for Brass and 30,000 lbs. per square inch for Copper are considered safe estimates, but are not guaranteed.

Second.—Multiply the tensile strength by the thickness of the metal in inches or decimal parts of an inch.

Third.—Divide by the radius (one half of the diameter) expressed in inches, and the result shows the pressure in pounds per square inch.

If a safety factor of six (6) is allowed, divide the above result by six (6).

Example.—A tube 4 inches outside diameter, No. 8, B. & S. gauge, made of metal, 40,000 lbs. per square inch tensile strength, shows 428 lbs. pressure per square inch as follows:

40,000 lbs. per square inch
 .1284 or No. 8 B. & S. thick

5136.0000

2568.0000

428 lbs. pressure per sq. in.

½ diam. 4 in. tube = 2 in.

Factor of safety, 6



To ascertain the weights of Seamless Copper Tubing, add 5 per cent to the weights of Brass Tubing.

SEAMLESS BRASS TUBE

WEIGHT IN POUNDS PER LINEAR FOOT

Subs Gauge: Outside Diameters. (To ascertain the weights of Seamless Copper Tube, add 5 per cent to the weights of Brass Tube).

Gauge No.	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
259	.259	.238	.220	.203	.180	.165	.148	.134	.120	.109	.095	.083	.072	.065	.058	.049	.042	.035	.032	.028	.025	.022	.020	.018	.016
1/4	15/64	13/64	3/16	11/64	9/64																				
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
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	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
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	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	
	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8	1/8										

To Determine Weight Per Foot of a Tube of a Given Inside Diameter, Add to Weights in These Lists the Weights Given Under Corresponding Gauge Numbers Below.

Gauge No.	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Increase in lbs. per foot	1.5487	1.3077	1.1174	.9514	.7450	.6285	.5057	.4145	.3324	.2743	.2084	.1690	.1197	.0975	.0777	.0554	.0407	.0283	.0236	.0181	.0144	.0112	.0092	.0075	.0059



To ascertain the weights of Seamless Copper Tubing, add 5 per cent to the weights of Brass Tubing.

SEAMLESS BRASS TUBE—Continued

WEIGHTS IN POUNDS PER LINEAR FOOT

Subs Gauge: Outside Diameters (To ascertain the weights of Seamless Copper Tube, add 5 per cent to the weights of Brass Tube)

Gauge No.	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Wall Thickness in Decimal parts of inch	259	238	220	203	180	165	148	134	120	109	095	083	072	065	058	049	042	035	032	028	025	022
Frac. of inch corresponding closely to Gauge Nos.	1/4	15/64		13/64	3/16	11/64	9/64		1/8		3/32	5/64		1/16		3/64			1/32			
Outside Diam. inches	11.21	10.36	9.62	8.92	7.95	7.32	6.59	5.99	5.39	4.91	4.29	3.76	3.27	2.96	2.64	2.24	1.92	1.60	1.469	1.287	1.147	1.010
	11.37	10.68	9.91	9.19	8.20	7.54	6.79	6.17	5.55	5.05	4.42	3.87	3.37	2.96	2.72	2.30	1.98	1.651	1.512	1.324	1.183	
	11.96	11.36	10.26	9.50	8.47	7.80	7.02	6.38	5.73	5.22	4.57	4.00	3.48	3.15	2.81	2.38	2.04	1.707	1.662	1.368	1.219	
	12.32	11.76	10.55	9.71	8.72	8.02	7.22	6.56	5.89	5.37	4.69	4.11	3.58	3.23	2.89	2.45	2.10	1.752	1.604	1.405	1.255	
	12.71	12.04	10.89	10.09	9.00	8.27	7.45	6.77	6.08	5.54	4.84	4.24	3.69	3.33	2.98	2.52	2.16	1.808	1.651	1.449	1.291	
	13.06	12.03	11.18	10.36	9.24	8.50	7.65	6.94	6.24	5.68	4.97	4.35	3.78	3.42	3.06	2.59	2.22	1.853	1.697	1.491	1.332	
	13.46	12.42	11.53	10.68	9.56	8.75	7.88	7.16	6.43	5.85	5.12	4.48	3.90	3.52	3.15	2.68	2.29	1.909	1.747	1.526		
	13.81	12.74	11.82	10.95	9.76	8.93	8.07	7.34	6.58	6.00	5.24	4.59	3.99	3.61	3.22	2.73	2.34	1.954	1.789	1.566		
	14.21	13.11	12.17	11.27	10.04	9.23	8.31	7.52	6.77	6.17	5.39	4.72	4.10	3.71	3.31	2.81	2.41	2.011	1.839	1.607		
	14.56	13.42	12.45	11.53	10.28	9.45	8.50	7.72	6.93	6.31	5.52	4.83	4.20	3.79	3.39	2.87	2.46	2.051	1.881			
	14.96	13.80	12.80	11.85	10.56	9.71	8.73	7.93	7.12	6.48	5.66	4.96	4.31	3.90	3.48	2.95	2.53	2.121	1.952			
	15.31	14.11	13.09	12.12	10.79	9.92	8.93	8.11	7.28	6.62	5.79	5.07	4.41	3.98	3.56	3.01	2.58	2.156	1.974			
	15.71	14.49	13.44	12.44	11.08	10.18	9.16	8.32	7.47	6.80	5.94	5.20	4.52	4.09	3.65	3.09	2.65	2.232	2.024			
	16.05	14.80	13.72	12.70	11.31	10.40	9.35	8.49	7.62	6.94	6.07	5.31	4.61	4.17	3.73	3.15	2.71	2.257				
	16.45	15.18	14.08	13.03	11.60	10.66	9.59	8.71	7.81	7.11	6.21	5.44	4.73	4.27	3.82	3.23	2.77	2.314				
	16.80	15.48	14.36	13.29	11.83	10.88	9.78	8.88	7.97	7.25	6.34	5.55	4.82	4.36	3.89	3.29	2.83	2.358				
	17.20	15.87	14.71	13.62	12.12	11.14	10.02	9.09	8.16	7.43	6.49	5.68	4.94	4.46	3.99	3.37	2.89	2.416				
	17.55	16.35	15.15	14.02	12.64	11.62	10.45	9.48	8.51	7.74	6.76	5.92	5.15	4.65	4.15	3.51	3.02					
	18.07	17.24	16.39	14.79	13.16	12.09	10.88	9.87	8.86	8.06	7.04	6.16	5.35	4.84	4.32	3.66	3.14					
	18.45	17.93	16.62	15.38	13.68	12.57	11.30	10.26	9.20	8.37	7.31	6.40	5.56	5.03	4.49	3.80	3.26					
	20.20	18.62	17.26	15.96	14.20	13.05	11.73	10.64	9.55	8.69	7.59	6.64	5.77	5.21	4.66	3.94	3.38					
	20.95	19.31	17.89	16.55	14.72	13.53	12.16	11.03	9.90	9.00	7.86	6.88	5.98	5.40								
	21.70	20.00	18.57	17.14	15.24	14.00	12.59	11.42	10.25	9.32	8.14	7.12	6.19	5.59								
	22.45	20.69	19.17	17.73	15.77	14.48	13.02	11.81	10.59	9.63	8.41	7.36	6.39	5.78								
	23.20	21.37	19.80	18.31	16.29	14.96	13.45	12.20	10.94	9.95	8.69	7.60	6.60	5.97								
	23.92	21.95	20.32	18.80	16.87	15.51	13.91	12.62	11.32	10.30												
	24.70	22.75	21.08	19.49	17.33	15.91	14.30	12.97	11.63	10.58												
	25.30	23.30	21.60	19.97	17.90	16.47	14.71	13.40	12.00	10.92												

SEAMLESS BRASS TUBE

RULE FOR CALCULATING APPROXIMATE WEIGHT PER LINEAR FOOT OF ANY SIZE NOT LISTED ABOVE

(Outside Diameter in inches, plus Inside Diameter in inches) multiplied by (Wall Thickness or Gauge in inches) and multiply the sum total by 5.77
 For example: Outside Dia. 2.0625" Inside 1.8595"
 3.9590" X .083" (14 Stubs Ga.) = .328597 X 5.77 = Ans. 1.896 Lbs. per linear Foot.



BRASS, COPPER AND TOBIN BRONZE RODS

WEIGHT IN POUNDS PER LINEAR FOOT.

Diameter in inches	Brass			Copper			Tobin Bronze			Diameter in inches
	Round	Square	Hexagon	Round	Square	Hexagon	Round	Square	Hexagon	
1/8	.01132	.01441	.01248	.01184	.01507	.01305	.01118	.01423	.01233	1/8
3/16	.04527	.05754	.04992	.04735	.05029	.05221	.04471	.05593	.04930	3/16
1/4	.1019	.1297	.1123	.1065	.1355	.1175	.1005	.1281	.1109	1/4
5/16	.1811	.2305	.1997	.1894	.2412	.2088	.1788	.2277	.1972	5/16
3/8	.2829	.3602	.3120	.2959	.3768	.3263	.2794	.3568	.3081	3/8
7/16										7/16
1/2										1/2
5/8										5/8
3/4										3/4
7/8										7/8
1										1
1 1/8										1 1/8
1 1/4										1 1/4
1 1/2										1 1/2
1 3/4										1 3/4
2										2
2 1/8										2 1/8
2 1/4										2 1/4
2 1/2										2 1/2
2 3/4										2 3/4
3										3
3 1/8										3 1/8
3 1/4										3 1/4
3 1/2										3 1/2
3 3/4										3 3/4
4										4
4 1/8										4 1/8
4 1/4										4 1/4
4 1/2										4 1/2
4 3/4										4 3/4
5										5
5 1/8										5 1/8
5 1/4										5 1/4
5 1/2										5 1/2
5 3/4										5 3/4
6										6

These weights are theoretically correct, but variations must be expected in practice.

WEIGHT OF PHOSPHOR BRONZE RODS

Phosphor Bronze is slightly lighter in weight than pure Copper but for all practical purposes the above weights of Copper Rod can be used as equivalent to the same sizes of Phosphor Bronze Rod.



DRAWN COPPER BARS

STANDARD RECTANGULAR SIZES
WEIGHT IN POUNDS PER LINEAR FOOT

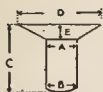
Size	Pounds	Size	Pounds	Size	Pounds
$\frac{1}{8}$ x $\frac{1}{8}$	.1206	$\frac{1}{4}$ x 2	1.929	$\frac{3}{4}$ x 1	2.894
$\frac{1}{8}$ x $\frac{3}{8}$	.1507	$\frac{1}{4}$ x 2 $\frac{1}{2}$	2.170	$\frac{3}{4}$ x 1 $\frac{1}{4}$	3.617
$\frac{1}{8}$ x $\frac{1}{2}$	.1809	$\frac{1}{4}$ x 2 $\frac{3}{4}$	2.412	$\frac{3}{4}$ x 1 $\frac{1}{2}$	4.341
$\frac{1}{8}$ x $\frac{3}{4}$	.2110	$\frac{1}{4}$ x 2 $\frac{3}{4}$	2.653	$\frac{3}{4}$ x 1 $\frac{3}{4}$	5.064
$\frac{1}{8}$ x 1	.2412	$\frac{1}{4}$ x 3	2.894	$\frac{3}{4}$ x 2	5.788
$\frac{1}{8}$ x 1 $\frac{1}{4}$	.3014	$\frac{3}{8}$ x 1	1.447	$\frac{3}{4}$ x 2 $\frac{1}{4}$	6.511
$\frac{1}{8}$ x 1 $\frac{1}{2}$	.3617	$\frac{3}{8}$ x 1 $\frac{1}{4}$	1.809	$\frac{3}{4}$ x 2 $\frac{1}{2}$	7.235
$\frac{1}{8}$ x $\frac{1}{4}$	.2412	$\frac{3}{8}$ x 1 $\frac{1}{2}$	2.170	$\frac{3}{4}$ x 2 $\frac{3}{4}$	7.958
$\frac{1}{8}$ x $\frac{3}{8}$	.3014	$\frac{3}{8}$ x 1 $\frac{3}{4}$	2.532	$\frac{3}{4}$ x 3	8.681
$\frac{1}{8}$ x $\frac{1}{2}$	.3617	$\frac{3}{8}$ x 2	2.894	$\frac{3}{4}$ x 3 $\frac{1}{4}$	9.405
$\frac{1}{8}$ x $\frac{3}{4}$	.4220	$\frac{3}{8}$ x 2 $\frac{1}{4}$	3.256	$\frac{3}{4}$ x 3 $\frac{1}{2}$	10.13
$\frac{1}{8}$ x 1	.4823	$\frac{3}{8}$ x 2 $\frac{1}{2}$	3.617	$\frac{3}{4}$ x 3 $\frac{3}{4}$	10.85
$\frac{1}{8}$ x 1 $\frac{1}{4}$	.6029	$\frac{3}{8}$ x 2 $\frac{3}{4}$	3.979	$\frac{3}{4}$ x 4	11.58
$\frac{1}{8}$ x 1 $\frac{1}{2}$	.7235	$\frac{3}{8}$ x 3	4.341	$\frac{3}{4}$ x 4 $\frac{1}{4}$	12.30
$\frac{1}{8}$ x 1 $\frac{3}{4}$	.8440	$\frac{3}{8}$ x 3 $\frac{1}{4}$	4.702	$\frac{3}{4}$ x 4 $\frac{1}{2}$	13.02
$\frac{1}{8}$ x 2	.9646	$\frac{3}{8}$ x 3 $\frac{1}{2}$	5.064	$\frac{3}{4}$ x 4 $\frac{3}{4}$	13.75
$\frac{1}{8}$ x 2 $\frac{1}{4}$	1.085	$\frac{3}{8}$ x 3 $\frac{3}{4}$	5.426	$\frac{3}{4}$ x 5	14.47
$\frac{1}{8}$ x 2 $\frac{1}{2}$	1.206	$\frac{3}{8}$ x 4	5.788	$\frac{3}{4}$ x 5 $\frac{1}{4}$	15.19
$\frac{1}{8}$ x 2 $\frac{3}{4}$	1.326	$\frac{3}{8}$ x 4 $\frac{1}{4}$	6.149	$\frac{3}{4}$ x 5 $\frac{1}{2}$	15.92
$\frac{1}{8}$ x 3	1.447	$\frac{3}{8}$ x 4 $\frac{1}{2}$	6.511	$\frac{3}{4}$ x 5 $\frac{3}{4}$	16.64
$\frac{3}{8}$ x $\frac{1}{4}$	.3617	$\frac{3}{8}$ x 4 $\frac{3}{4}$	6.873	$\frac{3}{4}$ x 6	17.36
$\frac{3}{8}$ x $\frac{3}{8}$	.4522	$\frac{3}{8}$ x 5	7.235		
$\frac{3}{8}$ x $\frac{1}{2}$	.5426			1 x 1	3.858
$\frac{3}{8}$ x $\frac{3}{4}$	.6330	$\frac{1}{2}$ x 1	1.929	1 x 1 $\frac{1}{4}$	4.823
$\frac{3}{8}$ x 1	.7235	$\frac{1}{2}$ x 1 $\frac{1}{4}$	2.412	1 x 1 $\frac{1}{2}$	5.788
$\frac{3}{8}$ x 1 $\frac{1}{4}$	.9043	$\frac{1}{2}$ x 1 $\frac{1}{2}$	2.894	1 x 1 $\frac{3}{4}$	6.752
$\frac{3}{8}$ x 1 $\frac{1}{2}$	1.085	$\frac{1}{2}$ x 1 $\frac{3}{4}$	3.376	1 x 2	7.717
$\frac{3}{8}$ x 1 $\frac{3}{4}$	1.266	$\frac{1}{2}$ x 2	3.858	1 x 2 $\frac{1}{4}$	8.681
$\frac{3}{8}$ x 2	1.447	$\frac{1}{2}$ x 2 $\frac{1}{4}$	4.341	1 x 2 $\frac{1}{2}$	9.646
$\frac{3}{8}$ x 2 $\frac{1}{4}$	1.628	$\frac{1}{2}$ x 2 $\frac{1}{2}$	4.823	1 x 2 $\frac{3}{4}$	10.61
$\frac{3}{8}$ x 2 $\frac{1}{2}$	1.809	$\frac{1}{2}$ x 2 $\frac{3}{4}$	5.305	1 x 3	11.58
$\frac{3}{8}$ x 2 $\frac{3}{4}$	1.989	$\frac{1}{2}$ x 3	5.788	1 x 3 $\frac{1}{4}$	12.64
$\frac{3}{8}$ x 3	2.170	$\frac{1}{2}$ x 3 $\frac{1}{4}$	6.270	1 x 3 $\frac{1}{2}$	13.50
		$\frac{1}{2}$ x 3 $\frac{1}{2}$	6.752	1 x 3 $\frac{3}{4}$	14.47
		$\frac{1}{2}$ x 3 $\frac{3}{4}$	7.235	1 x 4	15.43
		$\frac{1}{2}$ x 4	7.717	1 x 4 $\frac{1}{4}$	16.40
$\frac{1}{4}$ x $\frac{1}{4}$	.4823	$\frac{1}{2}$ x 4 $\frac{1}{4}$	8.199	1 x 4 $\frac{1}{2}$	17.36
$\frac{1}{4}$ x $\frac{3}{8}$	.6029	$\frac{1}{2}$ x 4 $\frac{1}{2}$	8.681	1 x 4 $\frac{3}{4}$	18.33
$\frac{1}{4}$ x $\frac{1}{2}$	.7235	$\frac{1}{2}$ x 4 $\frac{3}{4}$	9.164	1 x 5	19.29
$\frac{1}{4}$ x $\frac{3}{4}$	.8440	$\frac{1}{2}$ x 5	9.646	1 x 5 $\frac{1}{4}$	20.26
$\frac{1}{4}$ x 1	.9646	$\frac{1}{2}$ x 5 $\frac{1}{4}$	10.13	1 x 5 $\frac{1}{2}$	21.22
$\frac{1}{4}$ x 1 $\frac{1}{4}$	1.206	$\frac{1}{2}$ x 5 $\frac{1}{2}$	10.61	1 x 5 $\frac{3}{4}$	22.19
$\frac{1}{4}$ x 1 $\frac{1}{2}$	1.447	$\frac{1}{2}$ x 5 $\frac{3}{4}$	11.09	1 x 6	23.15
$\frac{1}{4}$ x 1 $\frac{3}{4}$	1.688	$\frac{1}{2}$ x 6	11.58		

COMPARISON OF GAUGES STANDARD ZINC GAUGE

Stand. Amer. Zinc 5A No.	Lbs. Per Square Foot*	Thickness in Inches	Equiv. in U.S.S. 6A
3	.225	.006	38
4	.300	.008	35
5	.375	.010-1/100	32
6	.450	.012	30
7	.525	.014	29
8	.600	.016	28
9	.675	.018	26
10	.750	.020-1/50	25
11	.900	.024	24
12	1.050	.028	23
13	1.200	.032	22
14	1.350	.036	20
15	1.500	.040-1/25	19
16	1.687	.045	19
17	1.875	.050	18
18	2.062	.055	17
19	2.250	.060-1/17	16
20	2.625	.070	15
21	3.000	.080	14
22	3.375	.090	13
23	3.750	.100-1/10	12
24	4.687	.125 $\frac{1}{2}$	11
25	9.375	.250 $\frac{1}{4}$	3
26	14.06	.375 $\frac{3}{8}$	.000
27	18.75	.500	.000000
28	37.50	1.000	.000000

*Weights and thickness subject to mill variation.

ZINC DOES NOT RUST



APPROXIMATE DIMENSIONS COPPER BELT RIVETS AND BURS



COPPER BELT RIVETS AND BURS

Number to the Pound

RIVETS						BURS			
Rivet Gauge No.	(A) Dia. of Shank Under Head	(B) Dia. at End of Shank	(C) Length Made	(D) Dia. of Head	(E) Thickness of Head	(F) Dia. of Wire Used in Making	(G) Inside Dia.	(H) Outside Dia.	(I) Thickness
3							.300	$\frac{3}{16}$ "	.081
4	.270	.255	$\frac{3}{8}$ to $2\frac{1}{4}$	$\frac{1}{2}$ "	.110	.265	.256	$\frac{3}{8}$ "	.071
5	.240	.222	$\frac{3}{8}$ to $2\frac{1}{4}$	$\frac{7}{16}$ "	.105	.241	.223	$\frac{5}{16}$ "	.064
6	.228	.205	$\frac{1}{4}$ to $2\frac{1}{4}$	$\frac{1}{2}$ "	.090	.220	.206	$\frac{7}{16}$ "	.057
7	.191	.175	$\frac{1}{4}$ to $2\frac{1}{4}$	$\frac{1}{2}$ "	.070	.181	.177	$\frac{1}{2}$ "	.050
8	.181	.165	$\frac{1}{4}$ to $2\frac{1}{4}$	$\frac{1}{2}$ "	.063	.171	.166	$\frac{1}{2}$ "	.045
9	.161	.145	$\frac{1}{4}$ to $2\frac{1}{4}$	$\frac{1}{2}$ "	.058	.151	.146	$\frac{3}{8}$ "	.040
10	.151	.137	$\frac{1}{4}$ to $2\frac{1}{4}$	$\frac{3}{8}$ "	.055	.141	.138	$\frac{1}{2}$ "	.036
11	.141	.127	$\frac{1}{4}$ to 2	$\frac{1}{2}$ "	.050	.131	.128	$\frac{3}{8}$ "	.031
12	.137	.123	$\frac{1}{4}$ to 2	$\frac{3}{8}$ "	.045	.127	.124	$\frac{3}{8}$ "	.028
13	.118	.105	$\frac{3}{8}$ to $1\frac{1}{4}$	$\frac{1}{2}$ "	.040	.111	.106	$\frac{1}{2}$ "	.025
14	.102	.092	$\frac{1}{2}$ to 1	$\frac{3}{8}$ "	.030	.095	.093	$\frac{5}{8}$ "	.022
15	.090	.085	$\frac{1}{2}$ to 1	$\frac{1}{4}$ "	.025	.087	.086	$\frac{1}{2}$ "	.020
16							.068	$\frac{1}{4}$ "	.017

Copper Belt Rivets Only															Burs only
No.	$\frac{1}{4}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	
4					48		46	43	41	34	32	30	26	76	
5					64	60	56	50	48	44	40	36	32	88	
6			128	110	90	88	78	63	64	56	52	48	44	184	
7	208	192	168	158	152	124	120	104	96	88	80	72	64	352	
8	246	240	208	200	168	152	136	120	104	96	88	84	84	400	
9	368	320	256	250	232	200	192	168	144	130	124	113	99	560	
10	379	352	320	290	256	240	216	184	160	142	130	124	113	768	
11	430	400	368	320	304	264	224	216	192	176	160	144	130	928	
12	496	432	408	368	336	304	272	232	208	192	176	160	144	1024	
13	800	640	628	480	432	416	386	320	288	272	256	240	224	1472	
14	1024	928	768	704	608	550	644	480	384	368	352	336	320	2048	
15	1248	1024	983	736	736	640	576	576	576	576	576	576	576	3392	

BRASS JACKET RIVETS

Dimensions and Number to the Pound

Numbers	7	8	8	9	12	13
Length in inches	$\frac{1}{4}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{8}$ "
Number to pound	188	312	240	340	525	860

COPPER HOSE RIVETS AND BURS

Number to the Pound

No.	$\frac{1}{4}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	Burs
7	164	188	133	128	120	113	102	92	85	352
8	209	173	169	152	145	130	110	100	90	400

OVAL HEAD COPPER RIVETS

Lengths measured under the head

Number to the Pound

No.	$\frac{1}{4}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	Burs
9	317	270	254	220	206	193	189	165	138	116	107	560
12	496	390	332	302	278	264	256	216	200	182	101	1024

COPPER BRAZIER'S RIVETS

Lengths measured under the head

OVAL HEAD											
Numbers	00	0	1	2	3	4	5	6	7	8	9
Number to pound	160	148	66	49	37	28	23	19	13	8	5
Diameter of shank	$\frac{1}{16}$ "	$\frac{1}{8}$ "	$\frac{1}{4}$ "	$\frac{3}{16}$ "	$\frac{1}{2}$ "	$\frac{5}{16}$ "	$\frac{3}{4}$ "	$\frac{7}{16}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "
Length in inches	$\frac{1}{8}$ "	$\frac{1}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "
FLAT HEAD											
$\frac{1}{4}$ in. diameter of shank by	$\frac{1}{4}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "
Number to pound	50	48	36	32	30	28	26	24	21	17	15
$\frac{3}{8}$ in. diameter of shank by	$\frac{1}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "
Number to pound	26	24	21	17	15	13	12	10	8	7	6
$\frac{1}{2}$ in. diameter of shank by	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "
Number to pound	17	15	13	12	10	8	7	6	5	4	3
$\frac{3}{4}$ in. diameter of shank by	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "
Number to pound	9	8	7	6	5	4	3	2	1	1	1

Diameter of shank in inches and B. & S. Gauge											
Length in inches	$\frac{1}{4}$ "	$\frac{3}{8}$ "	$\frac{1}{2}$ "	No. 5	No. 6	$\frac{3}{4}$ "	No. 7	No. 8	$\frac{1}{2}$ "	No. 9	No. 10
$\frac{1}{4}$ "	28	43	83	96	130	150	160	210	160	160	160
$\frac{3}{8}$ "	22	31	55	75	91	108	116	142	125	125	125
$\frac{1}{2}$ "	18	26	43	52	68	80	88	110	102	102	102
$\frac{3}{4}$ "	16	22	38	46	62	71	75	96	88	88	88
$1\frac{1}{4}$ "	14	20	33	42	54	64	67	83	75	75	75
2	13	18	29	37	48	56	60	72	64	64	64
2 $\frac{1}{2}$ "	12	16	25	34	41	48	52	66	58	58	58
2 $\frac{3}{4}$ "	11	15	23	32	37	44	47	57	50	50	50
3	10	14	21	30	34	40	43	52	46	46	46
3 $\frac{1}{2}$ "	9	13	20	28	31	37	39	48	42	42	42
4	8	12	19	27	29	35	37	46	40	40	40
4 $\frac{1}{2}$ "	8	12	18	25	27	33	35	44	38	38	38
5	7	11	17	23	26	32	34	43	37	37	37
5 $\frac{1}{2}$ "	7	10	16	22	25	31	33	42	36	36	36

These tables are theoretically correct, but variations must be expected in practice.

JNO. H. HEIMBUECHER METALS CO., ST. LOUIS, MO.



WEIGHT OF COPPER AND BRASS WIRE Weight of Wire per 1000 Lineal Feet

B. & S. Gauge No.	Decimal equivalent, inch	Copper, pounds	Brass, pounds
0000	.46000	640.5	610.2
000	.40964	507.9	483.9
00	.36480	402.8	383.8
0	.32486	319.5	304.4
1	.28930	253.3	241.4
2	.25763	200.9	191.4
3	.22942	159.3	151.8
4	.20431	126.4	120.4
5	.18194	100.2	95.47
6	.16202	79.46	75.71
7	.14428	63.02	60.04
8	.12849	49.98	47.61
9	.11443	39.63	37.76
10	.10189	31.43	29.94
11	.090742	24.92	23.75
12	.080808	19.77	18.83
13	.071961	15.68	14.93
14	.064084	12.43	11.84
15	.057068	9.858	9.393
16	.050820	7.818	7.449
17	.045257	6.200	5.907
18	.040303	4.917	4.684
19	.035830	3.899	3.715
20	.031961	3.092	2.946
21	.028462	2.452	2.336
22	.025347	1.945	1.853
23	.022571	1.542	1.469
24	.020100	1.223	1.165
25	.017900	.9699	.9241
26	.01594	.7692	.7328
27	.014195	.6100	.5812
28	.012641	.4837	.4609
29	.011257	.3836	.3655
30	.010025	.3042	.2898
31	.008928	.2413	.2299
32	.007950	.1913	.1823
33	.007080	.1517	.1446
34	.006304	.1203	.1146
35	.005614	.09542	.09092
36	.005000	.07568	.07210
37	.004453	.06001	.05718
38	.003965	.04759	.04535
39	.003531	.03774	.03596
40	.003144	.02993	.02852
Specific gravity		8.89	8.469
Weight cubic foot		555.	528.7

These weights are theoretically correct, but variations must be expected in practice.

COPPER WIRE NAILS

Size	Length and Gauge In.	Approximate Number to the Pound
	$\frac{3}{8}$	16
	$\frac{1}{4}$	14
	$\frac{1}{2}$	11
2d	1	15
3d	$1\frac{1}{4}$	11
3d	$1\frac{1}{4}$	14
4d	$1\frac{1}{2}$	11
4d	$1\frac{1}{2}$	13
5d	$1\frac{3}{4}$	12
6d	2	10
6d	2	12
7d	$2\frac{1}{4}$	8
7d	$2\frac{1}{4}$	9
7d	$2\frac{1}{4}$	11
8d	$2\frac{1}{2}$	10
9d	$2\frac{3}{4}$	10
10d	3	9
12d	$3\frac{1}{4}$	9
16d	$3\frac{1}{2}$	8
20d	4	6
30d	$4\frac{1}{2}$	5
40d	5	4
50d	$5\frac{1}{2}$	3
60d	6	2

CUT COPPER ROOFING NAILS

$1\frac{1}{4}$ in., approx. 190 to the pound.
 $1\frac{1}{2}$ in., approx. 135 to the pound

IRON PIPE SIZES

Seamless drawn brass and copper tubing to correspond to the outside measurement of iron pipes, and to fit iron fittings.

Iron Pipe Sizes Inches	American or B. & S. Gauge	Approx. Outside Diameter	Approx. Inside Diameter	Exact Outside Diameter	Exact Inside Diameter	Approximate Weight in Pounds			
						Brass		Copper	
						1 ft.	12 ft	1 ft.	12 ft
$\frac{1}{8}$	14	$\frac{11}{16}$	$\frac{11}{16}$	405	281	25	3.	.26	3.150
$\frac{1}{4}$	11	$\frac{11}{16}$	$\frac{11}{16}$	540	375	43	5.187	.45	5.394
$\frac{3}{8}$	11	$\frac{11}{16}$	$\frac{11}{16}$	675	494	62	7.437	.65	7.734
$\frac{1}{2}$	$9\frac{1}{2}$	$\frac{11}{16}$	$\frac{11}{16}$	840	625	90	10.812	.95	11.244
$\frac{3}{4}$	9	$1\frac{1}{16}$	$\frac{11}{16}$	1 05	822	1 25	15.	1.31	15.6
1	$7\frac{1}{2}$	$1\frac{1}{16}$	$1\frac{1}{16}$	1 315	1 062	1 70	20.	1.79	21.312
$1\frac{1}{4}$	7	$1\frac{1}{8}$	$1\frac{1}{8}$	1 660	1 368	2 50	30.	2.63	31.3
$1\frac{1}{2}$	7	$1\frac{1}{8}$	$1\frac{1}{8}$	1 900	1 600	3 00	36.	3.15	37.44
2	$6\frac{1}{2}$	$2\frac{3}{8}$	$2\frac{3}{8}$	2 375	2 062	4 00	48.	4.20	49.92
$2\frac{1}{2}$	4	$2\frac{3}{8}$	$2\frac{3}{8}$	2 875	2 500	5 75	69.	6.04	71.76
3	in.	$3\frac{1}{2}$	$3\frac{1}{2}$	3 500	3 062	8 30	99.625	8.72	103.605
$3\frac{1}{2}$		4	$3\frac{1}{2}$	4 000	3 500	10 90	130.8	11.45	137.64
4		$4\frac{1}{2}$	$4\frac{1}{2}$	4 500	4 000	12 70	152.4	13.33	160.44
$4\frac{1}{2}$		5	$4\frac{1}{2}$	5 000	4 500	13 90	166.8	14.60	175.56
5		$5\frac{1}{4}$	$5\frac{1}{4}$	5 563	5 062	15 75	189.	16.54	198.96
6		$6\frac{3}{8}$	$6\frac{3}{8}$	6 625	6 125	18 31	219.72	19.23	230.76
7		$7\frac{5}{8}$	$7\frac{5}{8}$	7 625	7 062	26 28	.....	27.60	.....
8		$8\frac{7}{8}$	$8\frac{7}{8}$	8 625	7 982	29 88	.....	31.37	.....

These Tubes are kept in stock in 12 ft. lengths. Special lengths to order.
 Extra Heavy Iron Pipe Sizes weigh $33\frac{1}{2}$ per cent heavier than Regular.

COMPARISON OF WIRE GAUGES
Expressed in Decimals of an inch

Gauge No.	American or Brown & Sharpe	Birmingham or Stubbs	Wash. & Moen	Imperial S. W. G.	London or Old English	United States Standard	Gauge No.
0000000		.490	.500		.500	0000000	
000000	.5800	.460	.464		.46875	000000	
00000	.5165	.430	.432		.4375	00000	
0000	.4600	.454	.3938	.400	.454	.40625	0000
000	.4096	.425	.3625	.372	.425	.375	000
00	.3648	.380	.3310	.348	.38	.34375	00
0	.3249	.340	.3065	.324	.34	.3125	0
1	.2893	.300	.2830	.300	.3	.28125	1
2	.2576	.284	.2625	.276	.284	.265625	2
3	.2294	.259	.2437	.252	.259	.25	3
4	.2043	.238	.2253	.232	.238	.234375	4
5	.1819	.220	.2070	.212	.22	.21875	5
6	.1620	.203	.1920	.192	.203	.203125	6
7	.1443	.180	.1770	.176	.18	.1875	7
8	.1285	.165	.1620	.160	.165	.171875	8
9	.1144	.148	.1483	.144	.148	.15625	9
10	.1019	.134	.1350	.128	.134	.140625	10
11	.09074	.120	.1205	.116	.12	.125	11
12	.08081	.109	.1055	.104	.109	.109375	12
13	.07196	.095	.0915	.092	.095	.09375	13
14	.06408	.083	.0800	.080	.083	.078125	14
15	.05707	.072	.0720	.072	.072	.0703125	15
16	.05082	.065	.0625	.064	.065	.0625	16
17	.04526	.058	.0540	.056	.058	.05625	17
18	.04030	.049	.0475	.048	.049	.05	18
19	.03589	.042	.0410	.040	.040	.04375	19
20	.03196	.035	.0348	.036	.035	.0375	20
21	.02846	.032	.03175	.032	.0315	.034375	21
22	.02555	.028	.0286	.028	.0295	.03125	22
23	.02257	.025	.0258	.024	.027	.028125	23
24	.02010	.022	.0230	.022	.025	.025	24
25	.01790	.020	.0204	.020	.023	.021875	25
26	.01594	.018	.0181	.018	.0205	.01875	26
27	.01420	.016	.0173	.0164	.0187	.0171875	27
28	.01264	.014	.0162	.0148	.0165	.015625	28
29	.01126	.013	.0150	.0136	.0155	.0140625	29
30	.01003	.012	.0140	.0124	.01372	.0125	30
31	.008928	.010	.0132	.0116	.0122	.0109375	31
32	.007950	.009	.0128	.0108	.0112	.01015625	32
33	.007030	.008	.0118	.0100	.0102	.009375	33
34	.006305	.007	.0104	.0092	.0095	.00859375	34
35	.005615	.005	.0095	.0084	.009	.0078125	35
36	.005000	.004	.0090	.0076	.0075	.00703125	36
37	.004453		.0085	.0068	.0065	.006640625	37
38	.003965		.008	.0060	.0057	.00625	38
39	.003531		.0075	.0052	.005		39
40	.003145		.007	.0048	.0045		40
41	.002800			.0044			41
42	.002494			.004			42
43	.002221			.0036			43
44	.001978			.0032			44
45	.001761			.0028			45
46	.001568			.0024			46
47	.001397			.002			47
48	.001244			.0016			48
49	.001018			.0012			49
50	.0009863			.001			50

Decimal Equivalents of
FRACTIONS OF AN INCH

	1	.015625
	1	.03125
	32	.046875
	16	.0625
	3	.078125
	32	.09375
1	7	.109375
8	9	.125
	5	.140625
	32	.15625
	3	.171875
	16	.1875
	7	.203125
	32	.21875
	3	.234375
1	4	.25
4	9	.265625
	32	.28125
	5	.296875
	16	.3125
	11	.328125
	32	.34375
3	8	.359375
	13	.375
	32	.390625
	7	.40625
	16	.421875
	15	.4375
	32	.453125
1	2	.46875
2	3	.484375
	17	.500
	32	.515625
	9	.53125
	16	.546875
	19	.5625
	32	.578125
	6	.59375
	8	.609375
	21	.625
	32	.640625
	11	.65625
	16	.671875
	23	.6875
	32	.703125
3	4	.71875
4	25	.734375
	32	.75
	13	.765625
	16	.78125
	27	.796875
	32	.8125
7	8	.828125
	29	.84375
	32	.859375
	16	.875
	16	.890625
	31	.90625
	32	.921875
	64	.9375
	32	.953125
	64	.96875
	64	.984375

Necessary Information on Orders and Inquiries

General Information:

On all orders and inquiries, be sure to give specific information regarding thickness, width, length and temper of metal. The purpose for which the metal is to be used should be clearly stated, as the requirements of the metal consuming trade are so varied, and there are so many different alloys, tempers and anneals, that it is not practicable to outline in a catalog the kind or quality best suited to any particular purpose. Whenever possible, a sample should be submitted.

Sheet Brass:

It will facilitate the filling of orders if the following information is furnished:

Thickness:

Sheet metal is measured by Brown and Sharpe's gauge, unless otherwise specified. We prefer to have gauge specified in decimal parts of an inch.

Width:

This must always be specified.

Length:

If uniform specific lengths are ordered, an extra charge will be made. If, after specifying the length any of the following phrases are added, no additional charge will be made: "With random lengths included." "With end pieces not shorter than two feet included." When specified length is less than two feet, no charge will be made for cutting, provided these words are added: "Or any multiple thereof."

Temper:

This must always be specified. Much delay and difficulty may be avoided, however, if customers will submit a sample of sheet when placing an initial order, and will let us know what the conditions are under which it is to be used.

Brass Tubing:

On orders and inquiries regarding Brass Tubing, always state the exact purpose for which it is to be used and specify whether the diameter refers to inside or outside measurement. When necessary, specify the diameter in decimals of an inch, as ascertained by micrometer calipers.

Anneals and Tempers:

The character of either the anneal or temper of the metal should be specified unless a sample is submitted. The tempers ordinarily furnished for Sheet Brass are "half hard," "hard" and "spring."

Tempers of Brass and Copper: Brass—

Hard: For purposes where the utmost stiffness and rigidity is required.

Half-hard: For purposes requiring a certain degree of stiffness with quality to withstand moderate distortion. The temper is obtained by a medium amount of drawing from the soft condition.

Semi-annealed: For purposes requiring an annealed tube with a maximum degree of stiffness. This temper is obtained by partial annealing a hard tube.

Soft: For purposes requiring bending, flanging and other distortion.

Copper—

Hard: This is the usual temper for copper tubes. It is not suitable for tubes that are to be bent.

Half-hard: Sometimes furnished on specific information as to use.

Annealed or soft: For uses where much bending or distortion is required.

Immediate Shipments:

All merchandise shown in this catalog, unless otherwise stated, is carried in stock in our St. Louis warehouses ready for immediate shipment. Our engineering department will gladly furnish estimate on special orders upon receipt of specifications accompanied by a blue print, sketch or sample.

INDEX

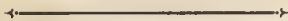
Acid Swabs	42	Copper Kettles	7
Aluminum Rivets	19	Copper Nails	16
Aluminum, Sheet	34	Copper Pipe	5
Angles, Brass	28-30	Copper Rivets and Burs	18
Anodes, Sheet Copper	38	Copper Rods and Bars	6-23-27
Bars, Brass and Copper	6-23-27	Copper Roofing	10-15
Baskets, Dipping	33	Copper, Sheet and Roll	3-4
Belt Rivets and Bars, Copper	18	Copper Shingle Nails	16
Bench Shears	42	Copper Shingles and Tile	10
Block Tin, Sheet	39	Copper Slaters' Nails	16
Bolts and Nuts, Brass	21	Copper Spikes	16
Brads, Copper	16	Copper Storm Nails	16
Brake Band Rivets, Copper	18	Copper Tacks	16
Brass Angles	28-30	Copper Tinnerns' Rivets	18
Brass Channels	28	Copper Tubes	5
Brass Door Pulls	30	Copper Wire	8
Brass Door Sill Mouldings	28	Dipping Baskets	33
Brass Gates	30	Door Pulls, Brass	30
Brass Kick Plates	30	Door Sill Mouldings, Brass	28
Brass Pipe	23-25	Drill Punch, Masonry	41
Brass Escutcheon Pins	20	Eaves Trough	11-13
Brass Nails	20	Edes Zinc	38
Brass Push Bars and Plates	30	Elbows, Leader	11-13
Brass Pipe Fittings	29-32-33	Electrotypers' Metals	38
Brass Plates, Engravers'	38	Engravers' Metals	38
Brass, Roll	22-23	Escutcheon Pins, Brass	20
Brass Railings and Grilles	30	Extruded Shapes, Metals	28
Brass Rivets and Washers	19	Fittings, Brass Pipe	29-32-33
Brass Rods and Bars	6-23-27	Flat Head Copper Tacks	16
Brass Screws	21	Gaskets, Copper Corrugated	32
Brass, Sheet and Roll	22-23-38	Gates, Brass	30
Brass Slaters' Nails	20	Gem Circles	14-15
Brass Strips for Floor Tiling	28	Grab and Push Bars	30
Brass Tubes, Brazed	24-25	Gutters and Gutter Hangers	11-13
Brass Tubes, Seamless	26	Hammer, Copper	42
Brass Tubular Rivets	19	Hammers, Setting and Riveting	42
Brass Weatherstripping Nails	20	Handles, Soldering Iron	41
Brass Wire	8	Hardened Masonry Nails	41
Brazed Brass Tubes	24-25	Kettles, Copper	7
Bronze, Phosphor	22	Kick Plates, Brass	30
Bronze Rods and Bars	27	Lead, Sheet	40
Bronze Tablets	30	Mallet, Tinnerns'	42
Bronze, Weatherstripping	23	Masonry Nails	41
Bronze Wire	8	Metals, Perforated	31
Channels, Brass	28	Mitres, Copper and Zinc	11-13
Circle Snips	42	Monel Metal	40
Coil, Copper	7	Mouldings, Brass Door Sill	28
Coloring of Copper and Brass	9	Munz Metal Slaters' Nails	20
Compression Pipe Fittings, Copper	33	Nails, Brass	20
Conductor Heads	11-13	Nails, Copper	16
Conductor Pipe	11-13	Nails, Masonry	41
Coopers' Rivets, Copper	18		
Cornice Bolts	13		
Copper Brads	16		
Copper Brake Band Rivets	18		
Copper Conductor Pipe	12-13		
Copper Coil	7		
Copper Elbows, Leader	12-13		
Copper, Engravers'	38		
Copper Gasket, Corrugated	32		
Copper Hammer	42		

INDEX -- *Continued*

Name Plates, Brass	30	Sheet Copper Anodes	38
Naval Bronze Rods and Bars	27	Sheet Lead	40
Nickel Silver, Sheet	35	Sheet Metal Screws	41
Nickel Zinc	39	Sheet Nickel Silver	35
		Sheet Zinc	37-38
"Old Chateau" Zinc Roofing	36	Shingles, Copper	10
Outlets, Gutter	11-13	Sickle Hooks	14-15
		Slaters' Nails, Brass	20
Parker-Kalon Screws and Punches	41	Slaters' Nails, Copper	16
Penn Circles	15-16	Snips, Tinners'	42
Perforated Metals	31	Snow Guards	14-15
Phosphor Bronze, Rolls	22	Soldering Copper Handles	41
Pipe, Brass	26	Soldering Coppers	42
Pipe, Copper	5	Stair Railings, Brass	30
Pipe Drives and Fasteners	15-16	Stop Punches	41
Pipe Fittings, Brass	29-32-33	Storm Nails, Copper	16
Punched Brass Strips	28	Swab, Acid	42
Punches	41		
Push and Pull Plates, Brass	30	Tablets, Bronze	30
Push Bars, Brass	30	Tacks, Copper	16
		Tile, Copper	10
Railings, Brass	30	Tin, Block Sheet	39
Ridging, Copper and Zinc	11-13	Tinners' Mallets	42
Rivets, Aluminum	19	Tinners' Rivets, Copper	18
Rivets and Burs, Brass	19	Tools	41-42
Rivets and Burs, Copper	17-18	Tubes, Brass Seamless	26
Riveting Hammers	42	Tubes, Brazed Brass	24-25
Rods and Bars, Copper	6-23-27	Tubes, Copper Seamless	5
Roll and Sheet Brass	22-23		
Roofing, Copper and Zinc	10-15-36	Weatherproof Sill Moulding	28
		Weatherstripping, Bronze	23
Screen Cloth	31	Weatherstripping Nails, Brass	20
Screws, Brass	21	Wire Conductor Strainer	12-13
Screws, Sheet Metal	41	Wire, Brass, Copper and Bronze	8
Scroll Snips	42	Wired Hooks	14-15
Seamless Brass Tubes	26		
Seamless Copper Tubes	5	Zinc Cut Nails	20
Setting Hammer	42	Zinc, Engravers'	38
Shears, Bench	42	Zinc, Nickel	39
Shears, "Grant Economy"	42	Zinc Roofing	36
Sheet Aluminum	34	Zinc Roofing Accessories	11-12
Sheet Block Tin	39	Zinc Roofing "Old Chateau"	37
Sheet Brass	22	Zinc, Sheet	37-38
Sheet Copper	3-4-38		



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